SELF – STUDY GUIDE

Grade 7

MATHEMATICS

LEARNERS SELF STUDY GUIDE

Support for National Examinations

ZIMBABWE

2020 First Edition

Ministry of Primary & Secondary Education

iGATE Improving Gender Attitudes, Transition and Education Outcomes

World Vision

Girls' Education Challenge

UKaid from the British people

World Vision International

Ministry of Primary & Secondary Education

iGATE
Improving Gender Attitudes, Transition and Education Outcomes

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PREFACE

Dear Grade 7 Student!

We are very glad that you have received a copy of this Self-Study Guide to help you through this very challenging school year.

The COVID-19 crisis has had a big impact on the entire world and on each of our lives. Everyone has had to make big and small adjustments. Everyone is called on to be cautious but also to be smart, creative and kind. People and Institutions, like school systems, are scrambling to adapt to protect each other and our loved ones, but also to find ways to keep all that we can as normal as possible. Governments are trying to protect our economies so that people can continue to earn their living, families are re-arranging their households so that they can live harmoniously and in schools, that is education systems, teachers and administrators are working hard to keep learning happening so that children can continue learn and grow during the special period of their lives that they are meant to learn and grow the most. In quickly putting together this guide for you, we hope to give you a boost to learn what you should in grade 7 and help you pass your exams.

This is a very important year for you and in your transition to higher levels of education. We are proud of all the efforts that you have made so far and want to see you progress as much as you can. We are with you and wish you much success.

ACKNOWLEDGEMENTS

World Vision (IGATE-T) developed these materials in collaboration with the Ministry of Primary and Secondary education to help support learners to continue studying and learning at home or beyond. It is our hope that this self-study guide will help you prepare, practice and succeed in your Grade 7 Examinations. IGATE-T wishes to acknowledge the Ministry of Primary and Secondary Education (MoPSE), Curriculum Development and Technical Services (CDTS) department for reviewing and editing the study guide. Special mention goes to Mawarire-Education Research Officer and Ishmael Mujaji - Materials Evaluation Officer for editing and evaluating this study guide.

A lot of time and devotion was put into this document to make it a success.IGATE-T wishes to extend its most sincere gratitude to the group of dedicated teachers for devoting their time and expertise to produce this study guide. Special thanks goes to our Cluster resource teachers from IGATE-T implementing districts Mrs.Rutendo.Zhou (insiza district), Mr.G.Mukwendi ,Mrs Claudious .Vimbainashe (Chivi),Mr.CaxtonTshuma (Mberengwa district),Mr .Emmanuel.Paranda (Gokwe),who worked in tandem with IGATE-T whole schools development project coordinator. Special gratitude goes to IGATE-T management, Worldvison education department and the whole IGATE-T project team for making this project a success.

May God bless you all for your contributions and your heart for learners.

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DEVELOP GREAT LEARNING HABITS

STUDY SMARTER - NOT HARDER!!!

1. **FIND A COMFORTABLE LEARNING SPOT**

   a. Find or make a place where you can work comfortably
   b. Ask a parent/guardian to recommend a spot if you have trouble
   c. Make sure it's quiet or free of distractions and has good lighting.
   d. Has a hard surface to work on (table and chair is ideal) but you can also work on a mat and use a sturdy piece of wood place upon your knees or between 2 bricks. Be resourceful!

2. **ASSEMBLE WHAT YOU NEED**
   a. Notebook, paper, pencil, eraser, sharpener, **Study Guide**!
   b. Ask for replacements before they run out.
   c. Keep them in your study spot if you can.

NEW HABITS HOW THEY FORM

- They take 18 - 21 DAYS
- Feeling of effort decreases
- Action begins to be automatic
- Bad Habits are hard to

3. **ESTABLISH A ROUTINE**
   a. Find time within your day and the routines of your family to be alone and uninterrupted. Best if it is the same time everyday.
   b. Complete your other chores and duties.
   c. Work in small sessions of 30 minutes to 1 hour, several times a day if you can.
   d. Make yourself a schedule at the beginning of your notebook (a sample is in the Annex). Change the time blocks as you need. Schedule the routines of your family that you must take part in (for example meals, chores, prayers). Then schedule in the tasks that are required of you (sweeping, washing, tidying etc).

e. Study one subject per session. Plan your study sessions and the subjects in the calendar.

4. SET GOALS

a. Start by setting time goals during the first week, for instance committing to 2-3 hours of school work a day (this could be broken up into 2 sessions). Increase the time the following week.

b. Another alternative is to set yourself page or task number goals for each session.

5. GET SUPPORT FROM OTHERS

a. Tell people how important school is for you and your future. Your education benefits you, the quality of your life now and in the future. Benefits will be reaped by you and your family.

b. Get HELP where you need it: like sticking to a schedule and meeting your goals! It's OK, everyone forget, everyone loses motivation. Self motivating is a HABIT and needs practice, so get help! Success means building self-discipline and focus. Ask your parent/caregiver/guarding, older sibling, auntie/uncle for help staying on track by giving your reminders.

c. ASK, ASK, ASK ! Older siblings or neighbours, your teacher, a parent or a family friend. If you are stuck or need help keep ASKing different people until you are satisfied! If possible call them on the phone!

d. Find a STUDY BUDDY Do you have a sibling, cousin or neighbour who also needs to study?

6. BALANCE YOUR TIME

a. Schedule for PLAY, FUN, EXERCISE AND RELAXATION!

b. Spend time with people you LOVE.

c. Read for 30 minutes to 1 hour each day for PLEASURE. Find a book, a text of something that interests you. WRITE in a journal. If you don't have books then write your own! Write with a friend! Mini books, Baby Books or chapter by chapter!

7. REWARD YOURSELF when you stick to your plan.

BUILD YOUR STUDY SKILLS

Problem-Solving Techniques

a. Be sure you understand what you're supposed to do.
b. Re-read all instructions.
c. Say the problem out loud (this helps!).
d. Break it down into steps.
e. Try working the problem backward.

HOW TO STUDY MATHEMATICS

Be Psychologically Ready

Love math and it will love you back! When you have opened your mind and embraced MATHEMATICS 50% work is done. It's all in the mind. Take away ideas that clog your mind. The ones that focus on fear and uncertainty. MATHEMATICS IS ABOUT CONQUERING THE UNKNOWN!

Get The Solution

Focus on the Solution! Clear your doubts. We all have them!!! Keep yourself in a learner's place. You are a learner until you can teach it to someone else. Treat every question as a question that can play an important role in fetching a good score.

Clear Your Doubts

Before starting off with any new topic, get your doubts cleared. Even if you think the doubt is the silliest one, ask it out. Then continue to as Questions until you have answers! Math Whizzes are PERSISTENT… so are you!

Create a Time-table

Yes! Did we say that already? creating a study time-table will prove beneficial to your undiscovered prowess at maths. Mathematics comes with a lot of complex topics. You cannot afford to solve each at once. Divide the timing to solve each topic efficiently. This way you can identify your weaker areas and know your strengths.

Go Visual

If learning maths on your own is boring, then get yourself visual appeal. Draw yourself a picture. Check in Texts books you might have. If you have access to internet, or know anyone who does, ask them to look up a video on the type of math or math problem you are working on! There are various online tutorials that can help you make mathematics interesting.

Follow the Three P's

Follow the three P's: Practice, Practice, and Practice! The more you practice, the more you help yourself in understanding how to excel in mathematics. Practise makes perfect and this saying never goes out of fashion. Once you complete a topic, go back and look for loopholes. Practising teaches you new ways to overcome the same topic in different ways.

Apply Maths to Real-world Problems

When approaching maths, try to apply it to real world problems. Practical application can help you take in ideas differently. Doing so will develop your interest in mathematics. Once you find interest in the subject, it will always be exciting for you to solve any sort of sums and problems.

Make Notes

Develop a habit of making notes while practising sums. Taking down things when solving sums will help you retain it for a longer period. Also, your notes will be your saviour in your last minute preparation. Note down all the formulas and equations at one place. It will help you absorb the matter.

Flex your Math Muscle

Revising the previous unit always helps. The more you revisit a new concept or type of problem and solve it again, the more ready you will be able to tackle without trouble in the future. Revision helps you know new things about the same topic in various other ways.

READING SKILLS

Yes, you NEED to READ to LEARN MATH!!

READING A TEXTBOOK: The Silent Coach

If you are one of the lucky ones to have a text book at home or, if you are able to get your hands on one here are some tips on how to read it!

What's in a textbook? Take a look. Your book is one of your most important study aids. So spend a few minutes getting acquainted with the books for all your subjects. It's well worth your time.

Title Page: What is this book about?

Introduction: This is a note to readers. Skim this section. What do the editors say about using this book?

Table of contents: How is the book organized? What's in it? What part are you most interested in?

Index: The quickest way to find the page where your book discusses a specific event, person, place, idea, organization, etc.

Glossary or vocabulary: This is the first place to look for the definition of an unfamiliar word used in your book. If you don't find it here, go to a dictionary.

Appendixes. Maps, charts, lists: See what's there. These special tools at the back of your book can be a big help as you study.

Everything You Read Makes You a Better Reader and a Better Student!

THINK NEAT AND COMPLETE

Don't sabotage yourself by being careless or sloppy!

Take Care and Take Time. Rushing comes with consequences!!!!

Write clearly. A neatly written answer usually gets a higher grade because the grader can read what you wrote. Avoid cross-outs, margin scribbles unless it is a draft, etc. But show your Work in Math!

Write numbers accurately and plainly in subjects like math. Line up columns when you copy a problem so you'll get the right answer and your teacher can see it without having to guess!

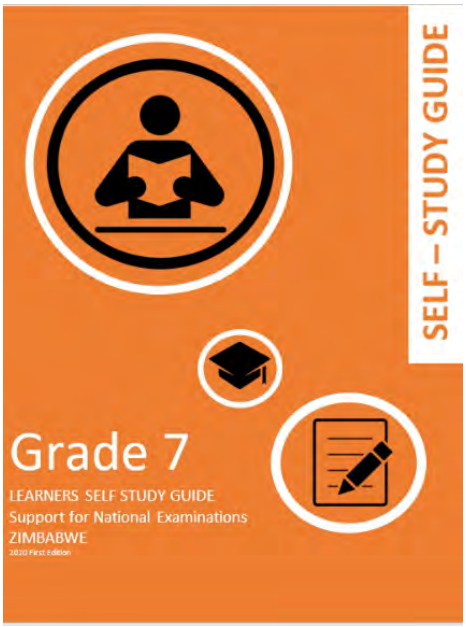
USING THIS STUDY GUIDE

a. Skim and scan the whole Study guide as described above

b. Set yourself goals as described above

c. Skim the assignment and assignments you have planned to complete before you tackle them to get an idea of length and determine the amount of time it will take. You'll get a general idea from skimming, too.

d. Work through the exercises



e. Make note of the subjects or topics that you have difficulty with and go back to them regularly. Give these areas special attention for review before your exam. Ask someone to re-explain the concepts and show you how to do it (Even if you feel that you know how)

f. Ask classmates how they are doing, discuss problems, share what you know and ask them for help.

We want

YOU to

SUCCEED!

HOW-TO STUDY FOR THE GRADE 7 EXAM

BEFORE THE EXAM

Begin Early

Start at least 2 weeks prior to your final examination. This way you, not the test, will be in command.

Identify trouble spots

Work on understanding trouble spots first.

Study in Spurts

Several one-hour reviews are much more effective than one marathon cram session.

Be Tricky

Find ways to remember things you find are not sticking' in your mind

- ***Mnemonic (ne-mon-ic)*** devices are extremely effective. Make up a sentence (or word) with the same initial letters as the list you need to memorize. For example, "Roy G Biv" = red, orange, yellow, green, blue, indigo, violet.)
- Make ***'flash cards'*** with the definition, formula, features or steps that you are trying to remember.

Don't Stare – Be Active

Activate different parts of your brain by drawing, saying things out loud, writing them out, moving while thinking. Outline, diagram, re-word, and condense main ideas, recite lists aloud. The more different ways you see and use the information, the better you'll remember it.

Index It

If there's something you just can't get, write it down on an index card or make yourself 'flash cards' from paper, construction paper or cardboard of a hand size (8cmx15cm). Carry the card with you everywhere and go over it every chance you get – between classes, on the bus, just before bed, etc.

Make Up Your Test

Do and redo practice exam questions from past exams. There are some in this guide and there are more online.

Do It All

Go through all materials, especially the concepts you struggle with the most, at least once the night before, and skim your notes just before the test.

Sleep On It

Don't pull an all-nighter just to fall asleep during the test. You'll do much better after a good night's sleep. Sleeping helps your brain sort, organize and store information so that you can remember it better! It helps to eat something shortly before the test.

DURING THE EXAM

Read and listen to all the directions first!

Listen to the Invigilator. Read all parts of the test carefully before you start. If you have any questions, ask them before you begin working.

Respect the time allotted for each question or section

These are usually provided. If not, the scoring system will tell you how much each question is worth, more points mean more time to place on iit.

Budget your time accordingly

If you can get through some questions fast. Go back and review the ones you skipped or had doubts.

Read the QUESTION AGAIN all the way through before starting.

While you complete the test look to see if the test gives away some answers. Most long objective tests will. Re read the question again while answering.

Answer ALL the questions to which you definitely know the answers first.

DO NOT LEAVE ANY QUESTIONS BLANK!!!!

Leave the more difficult questions until after you have gained all the points you can from the areas of your strongest knowledge.

Re-read the directions after you have finished the test to make sure you have done what was asked. Make sure you have given your name, class, section number, and other required information.

Look over your answers to make sure you haven't made silly mistakes which could pull your score down.

DO NOT change any answers unless you are absolutely certain the change is correct; your first hunch is apt to be right if you understood the question the first time.

Answer ALL the QUESTIONS!

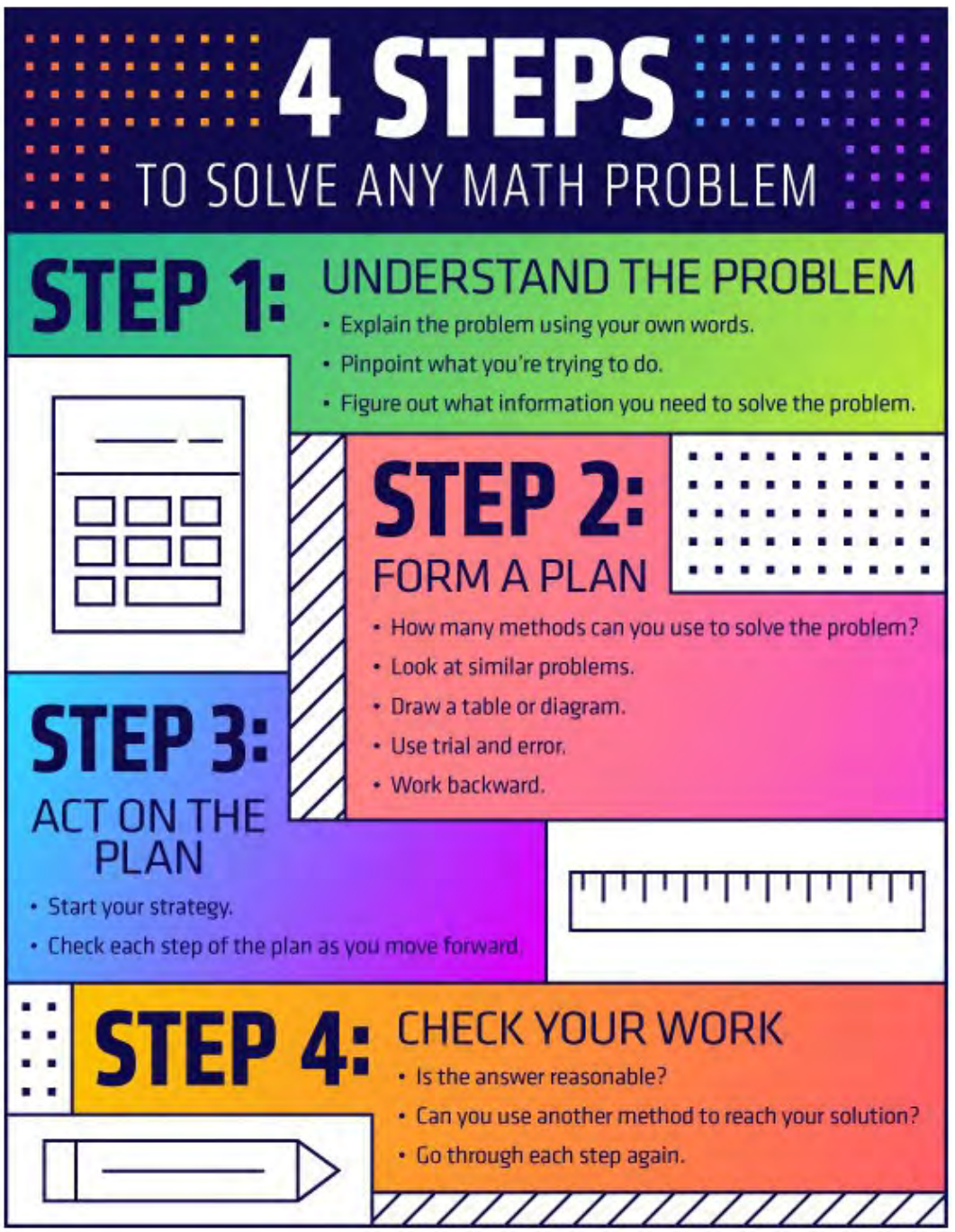
AFTER THE EXAM

Congratulate yourself for making it through

AFTERWARDS: Make a Plan to do better.

Ask yourself what went well, what didn't.

what would you do differently next time



HOW TO ANSWER MULTIPLE CHOICE QUESTIONS

- Read the whole question twice.
- Think as you read; multiple choice questions can be tricky.
- Answer the QUESTION or SOLVE the PROBLEM YOURSELF first before looking at the options.
- Pretend that you are not provided answers. Some answers will be trick answers. Don't fall in that trap!
- Answer all the questions you're sure of, first—these are your strong response answers.
- Beware of words like "often," "sometimes," and "always." Select the answer that seems most correct. Even wrong answers may be partially true.
- Don't take too much time on multiple choice questions—the longer you ponder, the more possibilities you'll think of and the more confused you'll get. Usually, only two of the four or five choices are good possibilities.
- ANSWER ALL THE QUESTIONS! -- Even if you have no clue.
- Eliminate the obviously incorrect, and from the two best, choose the one which seems most correct.
- Your first choice will usually be the best, if you are in doubt. Trust it.
- Never change an answer on multiple choice unless you're POSITIVE your first answer was wrong.
- DON'T LEAVE ANY QUESTION UNANSWERED. You will always get Zero on a blank question. Even when guessing on multiple choice you have 25% chance of getting it right.

HOW TO ANSWER PROBLEM-SOLVING QUESTIONS

- Before the test, study major concepts and review formulas. Solve a lot of practice problems so you know what to expect.
- During the test, identify the givens and the unknowns
- LIST the information you have to work with that is found in the question
- WRITE DOWN what you are looking for.
- Write OUT the formula used in all your calculations.

HOW TO AVOID TEST ANXIETY

What is Test Anxiety?

It's worry or fear caused by having to take tests. It may include mental distraction, physical symptoms, and mental blocks. Building your test-taking skills can help reduce test anxiety so you can feel better and do better.

Who is affected?

Every student who takes a test feels some anxiety. But for some students, the feeling is so intense that it affects their performance - with serious results. Some students can rise to the challenge, others view tests as threats. Students who have failed in the past often fear they'll fail again. A test anxious student may do poorly on an exam even if he or she knows the material better than a classmate who is able to control the anxiety.

You can learn to control your anxiety!

Think positively.

- Say calming, encouraging things to yourself when any emotional, frightening thought comes to mind.
- Replace the idea "I could never study enough for this test," with, "I have a lot to study, but if I stick to my schedule and concentrate, I can do it."
- Don't let your imagination go overboard! Anxiety is sure to follow.
- Visualize yourself remaining calm and in control, seated at a desk and writing the exam with all that you studied coming back to you.
- Cast yourself in the role of a winner, not a loser!
- Use your imagination in a positive way!
- Have a healthy diet, exercise regularly and get a good night's rest!! These can help you sleep better and handle pressure better.
- Use relaxation techniques: breathing slowly and deeply. Taking a quiet moment to quiet a nervous mind and clear the negative thoughts from your head.

If your mind is blocked during an exam...

- Close your eyes, take a long, deep breath, and let it out slowly.
- Concentrate on your breathing — feel and hear yourself breathing.
- Don't allow yourself to worry about the time, test, or tension.

You've GOT this!
We believe in YOU!

UNIT ONE: NUMBER

Unit Overview

	SUB-UNIT	Syllabus Objectives
1.1	NUMBER Whole Numbers (0-10,000,000)-	1.1.1. identify, read and write numbers in numerals and words 1.1.2 give the value of a digit in a number 1.1.3 Write numbers in index notation 1.1.4 express numbers in expanded index notation 1.1.5 arrange numbers in order of magnitude 1.1.5 compare numbers using comparison signs 1.1.6 identify & find prime numbers in the range 0 to 100 1.1.8 round off numbers to the nearest ten, hundred, thousand, ten thousand, hundred thousand and million
1.2	NUMBER Numeration Systems	1.2.1 convert Roman to Arabic numerals and vice versa
1.3	NUMBER Percentages	1.3.1 identify, read, write and express fractions as percentages and vice-versa 1.3.3 link decimals and percentages 1.3.4 Calculate percentage increase and decrease
1.4	OPERATIONS Addition/Subtraction of whole numbers-	1.4.1 add whole numbers less than or equal to 10 000 000 1.4.1 Subtract whole numbers 1.4.1 use the associative and commutative law with whole numbers.
1.5	OPERATIONS Addition and subtraction of decimals	1.5.1 adding decimals in the range 1.5.2 subtract decimals in the range
1.6	OPERATIONS Multiplication/Division of whole numbers	1.6.1 multiply numbers by 3 digit numbers 1.6.2 Divide whole numbers by 3-digits 1.6.3 Multiplying decimal by whole numbers
1.7	OPERATIONS Multiplication and division of decimals-	1.7.1 Multiply decimal numbers up to 3 places 1.7.2 Divide decimal numbers up to 3 places
1.8	OPERATIONS Financial Transactions	1.8.1 compute profit, loss as well as percentage profit and loss 1.8.2 calculate hire purchase, sales tax and value added tax calculate discount 1.8.3 commission and simple interest
1.9	MEASURES Money	1.9.1 prepare and interpret invoices 1.9.2 complete deposit and withdrawal slips analyse financial transactions 1.9.3 calculate postal rates 1.9.4 prepare simple personal and household budget
1.10	MEASURES Time	1.10.1 express and write time in 12 and 24-hour notation and SI notation 1.10.2 add and subtract time units 1.10.3 solve problems involving time
1.11	OPERATIONS Combined operations	solve combined operation problems
1.12	RELATIONSHIPS Data Handling	1.12.1 Interpreting Tables 1.12.2 Interpreting Graphs 1.12.3 Read & Extract information from Pie Charts Represent data on tables present data on graphs and pie charts use statistical graphs in life situations

1.1 WHOLE NUMBERS (0-10,000,000)

By the end of this Sub- Unit, you will be able to:	
identify, read and write numbers in numerals and words	Mini Lesson 1.1.1
give the value of a digit in a number	Mini Lesson 1.1.2
write numbers in index notation express	Mini Lesson 1.1.3
arrange numbers in order of magnitude	Mini Lesson 1.1.4
compare numbers using comparison signs	Mini Lesson 1.1.5
identify prime numbers in the range 0 to 100	Mini Lesson 1.1.6
find prime factors of numbers in the range 0 to 100	Mini Lesson 1.1.7
round off numbers to the nearest ten, hundred, thousand, ten thousand, hundred thousand and million	Mini Lesson 1.1.8

MY TOOLBOX FOR LEARNING

1.1.1 MINI LESSON - IDENTIFY, READ & WRITE NUMBERS IN NUMERALS & WORDS

Numbers are symbols, mathematical symbols that allow us to count, measure and label too. The numbers that we use most often in natural counting numbers are called whole numbers and can be represented in words or symbols (one, two, three… & 1, 2, 3…). We can write numbers from 1- 100 in words (see the chart in the reference section).

100	one hundred	H
1 000	one thousand	Th
10 000	ten thousand	T Th
100 000	hundred thousand	H Th
1 000 000	one million	M
10 000 000	ten million	T M

When writing numbers with more than 4 digits you need separate the digits in threes from the right. Here is a handy chart using the following number as an example: 12 436 789.

	TM	M	Hth	Tth	Th	H	T	U
Numbers	1	2	4	3	6	7	8	9

Examples: 25 Twenty-five, 79 seventy-nine, 1 009 One thousand and nine, 12 436 789 Twelve million four hundred and thirty-six thousand seven hundred and eight-nine.

1.1.2 REFERENCE SHEETS AND REMINDERS

Counting Chart: Numbers 1 to 100

1 one	2 two	3 three	4 four	5 five	6 six	7 seven	8 eight	9 nine	10 ten
11 eleven	12 twelve	13 thirteen	14 fourteen	15 fifteen	16 sixteen	17 seventeen	18 eighteen	19 nineteen	20 twenty
21 twenty-one	22 twenty-two	23 twenty-three	24 twenty-four	25 twenty-five	26 twenty-six	27 twenty-seven	28 twenty-eight	29 twenty-nine	30 thirty
31 thirty-one	32 thirty-two	33 thirty-three	34 thirty-four	35 thirty-five	36 thirty-six	37 thirty-seven	38 thirty-eight	39 thirty-nine	40 forty
41 forty-one	42 forty-two	43 forty-three	44 forty-four	45 forty-five	46 forty-six	47 forty-seven	48 forty-eight	49 forty-nine	50 fifty
51 fifty-one	52 fifty-two	53 fifty-three	54 fifty-four	55 fifty-five	56 fifty-six	57 fifty-seven	58 fifty-eight	59 fifty-nine	60 sixty
61 sixty-one	62 sixty-two	63 sixty-three	64 sixty-four	65 sixty-five	66 sixty-six	67 sixty-seven	68 sixty-eight	69 sixty-nine	70 seventy
71 seventy-one	72 seventy-two	73 seventy-three	74 seventy-four	75 seventy-five	76 seventy-six	77 seventy-seven	78 seventy-eight	79 seventy-nine	80 eighty
81 eighty-one	82 eighty-two	83 eighty-three	84 eighty-four	85 eighty-five	86 eighty-six	87 eighty-seven	88 eighty-eight	89 eighty-nine	90 ninety
91 ninety-one	92 ninety-two	93 ninety-three	94 ninety-four	95 ninety-five	96 ninety-six	97 ninety-seven	98 ninety-eight	99 ninety-nine	100 one hundred

IT'S YOUR TURN!

1.1.1.3 TASK

1. Write the following numbers in words
   a) 2 005 b) 567 128
2. Write the following numbers in words as numerals
   a) Three thousand four hundred and two
   b) Seventeen thousand six-hundred and sixty-three

MY TOOLBOX FOR LEARNING

1.1.2 MINI LESSON
GIVE THE VALUE OF A DIGIT IN A NUMBER

The value of a digit changes depending on the position or place it is in with regards to other digits in a number as we saw above. In single digit numbers the place value is automatically the UNITS also called ONES. For example, the number 3 is a single digit number. In two digit numbers, such as 12 we have a digit that represents TENS (1) and another digit representing UNITS (2). In three-digit numbers, we have HUNDREDS, TENS AND UNITS. This goes on until we get to 8 digit numbers as seen in the place value chart below.

	Million	Hundred thousand	Ten thousand	thousand	hundred	ten	units
	M	Hth	Tth	Th	H	T	U
Numbers	1	5	4	7	8	2	9

Using the chart above you can easily tell the value of each given digit in a number.

Example: (a) 3 ***(UNITS)*** (b) 25 ***(TENS)*** (c) 678 ***(HUNDREDS)***
(d) 5 783 ***(THOUSANDS)*** (e) 78 302 ***(TEN THOUSANDS)***
(f) 443 213 ***(HUNDRED THOUSAND)*** (g) 7 852 898 ***(MILLONS)***
(h) 21 534 149 ***(TEN MILLIONS)***

1.1.2.3 REFERENCE SHEETS & REMINDERS

Words	Million	Hundred thousand	Ten thousand	thousand	hundred	ten	units
	M	Hth	Tth	Th	H	T	U
Numbers	9	2	8	7	4	5	1

IT'S YOUR TURN!

1.1.2.4 ACTIVITIES

Draw place value charts in your notebook using pencils. Copy the one given in the mini lesson. Place each digit in the numbers you would have chosen in their correct place value. Use numbers ranging from single digit numbers to 7-digit numbers. Give the value of the underlined digit

(a) 234 (b) 1 740 (c) 10 472 (d) 632 856

MY TOOLBOX FOR LEARNING

1.1.3 MINI-LESSON -- WRITE NUMBERS IN INDEX NOTATION

Index notation is a short way of writing large numbers that are multiplied by itself several times. This is helpful when we need to express very large numbers with so many digits that make the number difficult to read. The number representing the number of times it is multiplied by itself is called the index, the power or exponent.

EXAMPLES

a) $10^2 = 10 \times 10 = 100$

To read the exponent we say '10 to the power of 2'

b) $10^5 = 10 \times 10 \times 10 \times 10 \times 10 = 100\,000$

10^5 is read '10 to the power of 5'

$4^3 = 4 \times 4 \times 4 = 64$

1.1.3.2 REFERENCE SHEETS AND REMINDERS

Index notation	Expanded notation	Number
10^6	10x10x10x10x10x10	1 000 000

- Every number to the power zero 1 i.e 100 =1
- Always multiply the main number by the number of times shown by the index
- Index can be called the power of or exponent.

IT'S YOUR TURN!

1.1.3.4 ACTIVITY - MATCHY MATCHY GAME

Make cards 100, 1 000, 10 000, 100 000, 1 000 000. Make another set with numbers in index form. 102, 103, 104, 105, 106. Match the numbers to the index form correctly. Do the same with other numbers in index forms.

1. Write the following numbers as numerals.

a) 10^3 = b) 10^4 = c) 5^6 = d) 100 000=

MY TOOLBOX FOR LEARNING

1.1.4.1 MINI-LESSON - ARRANGE NUMBERS IN ORDER OF MAGNITUDE

Order of magnitude – means order by size.

Ascending order is the arrangement from the lowest to the highest number. Descending order is the arrangement from the highest number to the lowest. The usual order with increase/decrease by one.

IT'S YOUR TURN!

1.1.4.2 EXERCISE

1. Arrange the following in ascending order 780; 350; 786; 455 and 626
2. Arrange the following in descending order 2099; 563; 1109; 425 and 1992

MY TOOLBOX FOR LEARNING

1.1.5.1 MINI-LESSON -- COMPARE NUMBERS USING COMPARISON SIGNS

When comparing numbers, we look at the similarities or differences of numbers. In mathematics, there are symbols we use to express comparisons.

< Is less than, > Is greater than, = Is equal to

Example

1): Compare the following numbers using <, >, =

H	T	U		H	T	U
9	8	0	☐	9	6	3

2) Compare the numbers : 10 000 ☐ 104 562

Tth	Th	H	T	U		Hth	Tth	Th	H	T	U
1	0	0	0	0	☐	1	0	4	5	6	2

10 000 < 104 562

1.1.5.3 REFERENCE SHEETS AND REMINDERS

- The value is important when comparing numbers.
- We compare both numbers starting from the left to the right of both numbers to be compared.

IT'S YOUR TURN!

EXERCISE Activity 1:

Make arrow cards as indicated below

Cut a lot small rectangles the size of your hand or a bit smaller.

For instance, you can lay out the cards in 3's to make numbers in the hundreds. Compare the numbers that you have created and indicate their relationship using a symbol card in the center (<,>,=).

6	9	4	<	8	7	7

Activity 2: Play with a friend!

Decide on how many numbers to lay out out and then compare them together. Or, have each of you make up a number with the number of values of your own choosing.

Record the numbers in your notebook. Each of you can then decide on the comparison, note it in your notebook and then compare your answer with your friend.

MY TOOLBOX FOR LEARNING

1.1.6.1 MINI-LESSON - IDENTIFY PRIME NUMBERS IN THE RANGE 0 TO 100

A prime number is a number greater than one that can be divided by one and itself which means it has only 2 factors, itself and 1. Most prime numbers are odd except for the number 2, which is also a prime number.

Which of the following numbers are prime numbers:

11 13 17 20 22 23 29 31 51 57 60 73 75 87 91 97

For example, 11 can only be divided by 1 and itself the same for 13 and 17. 20 has the following factors 1,2,4,5. It is therefore NOT a prime number.

Prime factors are factors of composite numbers that are also prime numbers.

2 x 3 =6 and both 2 and 3 are prime factors

1.1.6.2 EXAMPLES

a) Express 40 as a product of its prime factors

Identify all the factors of 40 = 2, 4, 5, and 8. The highlighted numbers are the prime factors. The question needs the product, you need to multiply the prime factors to give the product

40= 2 x 2 x 5 x 2

b) Give the prime factors of 63 = 7 x 9

List the factors of 63=3, 7, 9 The prime factor of 63 are 3 & 7.

Express 63 as a product of its prime factors: 3 x 7 x 3

1.1.6.3 REFERENCE SHEETS & REMINDERS

Number Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

IT'S YOUR TURN!

1.1.6.4 ACTIVITY1 Make cards labelled from 1-100.

Take two chalk empty boxes labelled prime numbers where you will deposit prime numbers chosen from the number cards. This is a contest between players 1 and 2. A third player is needed who has a timer set to 55 seconds to finish our pile of numbers. The third player is the one who will set the pair to start and count number of correct deposits in both boxes. The one with the more prime number deposited is the winner!

MY TOOLBOX FOR LEARNING

1.1.8.1 MINI-LESSON - ROUNDING NUMBERS TO THE NEAREST TEN, HUNDRED, THOUSAND, TEN THOUSAND, & MILLION

In Grade 7 you only need to know place value up to 10 million.
Here are 3 examples of a number in the Ten Million range:

a) in written form: Seventy-six million, Four-hundred and fifty-three thousand, two hundred and ninety-tight

b) 6 453 298

c) 7 453 298

Notice that starting from the right side, each block of 3 place values are marked off by a space.

To round off to the nearest Tens the number in the Units will become a Zero. But what to do with the Number in the Tens? You have to decide whether to keep it the same or increase it by 1. In our example, the question is whether to keep it at 2 or increase it

to 3. The answer is hidden in the Unit number, 7.

The magic question you must ask yourself, is the Units number closer to 10 or to 0?

7 is closer to 10 than 0. This means that you must increase the Tens by 1. So the 2 will become a 3 (the 7 has become a zero). The final answer is $30.

EXAMPLE: round off these to the nearest 10

a) 17

TENS	UNITS
1	7

For us to round off look on the units, in this case 7. You must ASK yourself is the number equal to or greater than 5? If it is! So we must increase the Tens by 1, which is 20

b) 43

TENS	UNITS
4	3

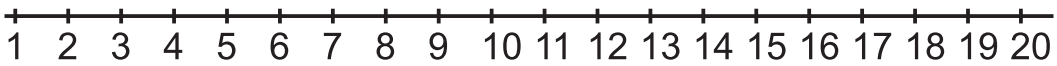
43 we look at the Units, which is 3. Is it under 5 or above 5? It's below 5 so our ten will not change. The answer is 40

1.1.8.3 Reference Sheets and Reminders

- Always remember to focus on the number to the right of the place value to round off
- When the number is equal to or greater than 5 then the place value being round increased by 1
- Numbers less than 5 mean that the focal number will not be affected
- Whole numbers can be rounded off.

Number Line

Make yourself a number line like this.



IT'S YOUR TURN!

1.1.8.4 EXERCISE

1. Round off these numbers to the nearest TENS

a) 69 b) 72 c) 86

2. Round off these numbers to the nearest Hundreds.

a) 684 b) 1 232 c) 450 389 d) 345 789

1.2 NUMERATION SYSTEMS (Arabic & Roman Numerals I to M)

By the end of this Sub- Unit, you will be able to:	
Convert Roman to Arabic numerals and vice versa	*Mini Lesson 1.2.1*

MY TOOLBOX FOR LEARNING

1.2.1.1 MINI-LESSON – IDENTIFY AND CONVERT ARABIC NUMERALS TO ROMAN NUMERALS I TO M

In this activity we are focusing on different numeration systems: Roman numerals and Arabic numerals. Arabic numerals are the numbers we use every day: 1,2,3,4,5 etc. Roman numerals are ancient Roman symbols that represent numbers we use and see today.

1.2.1.3 REFERENCE SHEETS AND REMINDERS

- Arabic symbols are the numbers we use every day like 1,2,3,4
- Roman ancient numbers

Roman numerals chart

I	1
II	2
III	3
IV	4
V	5
VI	6
VII	7
VIII	8
IX	9
X	10
XI	11
XII	12
XIII	13
XIV	14
XV	15
XVI	16
XVII	17
XVIII	18
XIX	19
XX	20

XXI	21
XXII	22
XXIII	23
XXIV	24
XXV	25
XXVI	26
XXVII	27
XXVIII	28
XXIX	29
XXX	30
XXXI	31
XXXII	32
XXXIII	33
XXXIV	34
XXXV	35
XXXVI	36
XXXVII	37
XXXVIII	38
XXXIX	39
XL	40

XLI	41
XLII	42
XLIII	43
XLIV	44
XLV	45
XLVI	46
XLVII	47
XLVIII	48
XLIX	49
L	50
LI	51
LII	52
LIII	53
LIV	54
LV	55
LVI	56
LVII	57
LVIII	58
LIX	59
LX	60

LXI	61
LXII	62
LXIII	63
LXIV	64
LXV	65
LXVI	66
LXVII	67
LXVIII	68
LXIX	69
LXX	70
LXXI	71
LXXII	72
LXXIII	73
LXXIV	74
LXXV	75
LXXVI	76
LXXVII	77
LXXVIII	78
LXXIX	79
LXXX	80

LXXXI	81
LXXXII	82
LXXXIII	83
LXXXIV	84
LXXXV	85
LXXXVI	86
LXXXVII	87
LXXXVIII	88
LXXXIX	89
XC	90
XCI	91
XCII	92
XCIII	93
XCIV	94
XCV	95
XCVI	96
XCVII	97
XCVIII	98
XCIX	99
C	100

CC	200
CCC	300
CD	400
D	500
DC	600
DCC	700
DCCC	800
CM	900
M	1000

EXERCISE

State the following Arabic numbers as Roman numerals.

a)23 b)82 C)41 d)400

State the following Roman numerals as Arabic numbers.

a)D b)DC C)XC d) CM e)M

IT'S YOUR TURN!

1.2.1.4 ACTIVITIES

Activity 1: Guess and match game

Using the same resource chart on Roman Numerals and Arabic Numbers .Chantelle and Shalom wrote down Roman Numeral and. Arabic numeral from the chart on cards to use in the guessing game. They put the cards in a bag and took turns to guess .Chantelle was the first to pick a Roman numeral card from the bag and asked Shalom to guess what Arabic number it was .They took turns to guess and match correctly .They recorded the correct answers they made.You can play this game too with a partner.

1.3 PERCENTAGES

By the end of this Sub - Unit, you will be able to:	
identify, read and write percentages	*Mini Lesson 1.3.1*
express fractions as percentages and vice versa	*Mini Lesson 1.3.1*
link decimals and percentages	*Mini Lesson 1.3.3*
calculate Percentage increases and Decreases	*Mini Lesson 1.3.4*

MY TOOLBOX FOR LEARNING

1.3.1.1 MINI-LESSON -- Identify, read and write percentages and express them as fractions

The percentage symbol is %. "*percent*" means "out of one hundred". Percentages are directly linked to fractions.

1.3.1.2 EXAMPLES

Or ten out of hundred, can also be written as 10%. Twenty out of one-hundred, or is 20%. Thirty percent, 30%, is thirty out of hundred, .

a) 10/100 is a fraction, to change it to a percentage

x = 10% we cross multiply.

b) Express as a percentage: x = =40%

c) Express 10% as a fraction:
Step 1 : Express 10% as a fraction=10/100
Step 2 : reduce the fraction out of hundred to its simplest form.
Divide by 10

1 ~~10~~/~~100~~ ^{10}=

2) Express 50% as a fraction

Step 1: Express 50% as a fraction=

Step2: Reduce the fraction out of hundred. Divide by 50.

$^{1}\cancel{50}/\cancel{100}^{2}=$

Convert the following to a fraction

a) 20% $= \frac{20}{100}$ express percentage as a fraction

find the highest common factor (HCF) to divide 20 the numerator and 100 the denominator .20 is used to reduce the fraction to it simplest form

EXERCISE

Express as a fraction

a)30% b)60% c)70% d) 25%

Give the fractions as percentage

a) $\frac{2}{5}$ b) $\frac{3}{4}$ c) $\frac{1}{4}$ d) $\frac{1}{5}$

MY TOOLBOX FOR LEARNING

1.3.3.1 MINI-LESSON – link decimals and percentages

A decimal is a number with a comma .A percentage is a number out of hundred and its symbol is %. This then links Percentage to hundredths. This means that or, ten out of hundred, can also be written as 10%. Twenty out of one-hundred, or is the same as 20%. Thirty percent, 30%, is the same as thirty out of hundred, .

Examine the following pattern :

10%	20%	30%	40%	50%	60%	80%	100%
$\frac{10}{100}$	$\frac{20}{100}$	$\frac{30}{100}$	$\frac{40}{100}$	$\frac{50}{100}$	$\frac{60}{100}$	$\frac{80}{100}$	$\frac{100}{100}$
$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{8}{10}$	$\frac{10}{10}$

Use the chart below to find the equivalent to the following numbers:

a)25% b) 20% c) 75%

Linking decimal to percentage

Examples

1) $25\% = \frac{25}{100} = 0{,}25$

2) $45\% = \frac{45}{100} = 0{,}45$

3) $77\% = \frac{77}{100} = 0{,}77$

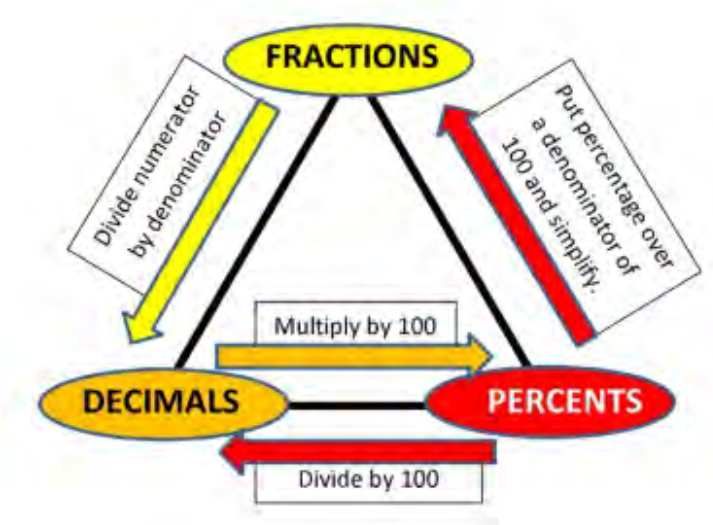
EXERCISE:

Link the following percentages to decimal

a) 23% b) 30% c) 65% d) 84% e) 92%

1.3.3.3 REFERENCE SHEETS AND REMINDERS

% PERCENTAGE	DECIMAL
10%-	0,1
20%	0,2
25%	0,25
30%	0,3
40%	0,4
50 %	0,5
60%	0,6
70%	0,7
75%	0,75
80%	0,8
90%	0,9
100%	1,0



IT'S YOUR TURN!

EXERCISE

1. Change the decimals to percentages
   a) 0,23 b) 0,5 d) 0,84 e) 0,95

2) Change the percentages to decimals
   a) 5% b) 30% c) 75% d) 90%

MY TOOLBOX FOR LEARNING

1.3.4.1 MINI-LESSON -- PERCENTAGE DECREASE AND INCREASE

➢ This helps to understand changes in the value of money or quantity

HOW TO Calculate a percentage increase

➢ $\frac{\text{New value-initial value}}{\text{Initial}} \times \frac{100}{1}$

Mary's initial salary = $200
New salary = $240

Increase = $240 - 200 = $40

Percentage increase = $\frac{40}{200} \times \frac{100}{1} = 20\%$

HOW TO Calculate a percentage decrease

- Percentage decrease is the decrease of value or quantity

- $\frac{\text{Initial value - new value}}{\text{Initial value}} \times \frac{100}{1}$

Truck weighted 1 tonne = 1000kg
Truck weight reduced to = 750kg

Percentage decrease = 1000kg - 750kg = 250kg

% decrease = $\frac{250kg}{1\,000} \times \frac{100}{1} = 25\%$

EXERCISE:

1) Rudo had 20 sweets. She ate 10 sweets. What is the percentage decrease of the number of sweets?
2). A motor car spares dealer had 100 tyres in stock on a Monday. He sold 75 tyres during that week. After stock taking on Friday. What was the percentage decrease in his stock of tyres?
3) The price of a book was $60 dollars in April. The same book was bought by kyle at $100 in June?
a)What percentage was this?
b)what was the percentage increase or decrease?

1.4 ADDITION & SUBTRACTION OF WHOLE NUMBERS

By the end of this Sub - Unit, you will be able to:	
add whole numbers less than or equal to 10 000 000	*Mini Lesson 1.4.1*
use the associative and commutative law with whole numbers.	*Mini Lesson 1.4.1*

MY TOOLBOX FOR LEARNING

1.4.1 MINI-LESSON – ADDITION OF AND SUBTRACTING WHOLE NUMBERS

Whole Numbers are natural numbers as we know , that include 1 to infinity. A whole number is called whole because it is full.

Addition of whole numbers

	Tth	Th		H	T	U
	2	3		4	3	7
+	1	7		1	2	3
	4	0		5	6	0

To add and subtract whole numbers, we align place values vertically as shown above.

Subtraction of whole numbers

321
-189
510

Using the commutative and associative.

Commutatively means that you can swap numbers around on an addition sentence and that will not affect the answer. This is found in addition. The associative law states that the manner in which the arrangement of three numbers to add made does not change the answer

Commutative law

2+3=5 is the same as 3+2=5

265+300=565 is the same as 300+265=565

Associative law

(3+2)+4=9 is the same as 4+(2+3)=9

1.4.1 REFERENCE SHEETS & REMINDERS

- ✓ We need to align the numbers according to their place values adding or subtracting.
- ✓ Never leave out the operation sign +/-
- ✓ Give back when ever you borrow from another place value
- ✓ Number to be subtracted from is the minuend
- ✓ The number to be subtracted is the subtrahend
- ✓ Remember: Spaces between numbers show place value

IT'S YOUR TURN!

EXERCISE

1. a) 201+ 819 = b) 530 + 910 = c) 672 + 429 =
   d) 1 473 + 738 =
2. a) 400 – 0 = b) 542 – 211 = c) 4 228 - 1 489
   d) 13 426 – 987 =

1.5 ADDITION & SUBTRACTION OF DECIMALS

By the end of this Sub - Unit, you will be able to:	
adding decimals in the range	*Mini-Lesson 1.5.1*
subtract decimals in the range	*Mini Lesson 1.5.2*

MY TOOLBOX FOR LEARNING

1.5.2.1 MINI-LESSON – ADDING DECIMALS

Use the following steps when subtracting an adding decimal numbers

1) 3,5+0,1+43,21=

$$\begin{array}{r} 3,5 \\ 0,1 \\ +43,21 \\ \hline 46,81 \end{array}$$

2) 0,1+43,21=

$$\begin{array}{r} 0,1^{*} \\ +43,21 \\ \hline 43,31 \end{array}$$

1.5.2.2 EXAMPLES

1) 2,401 + 3,72 + 0,1 =

$$\begin{array}{r} 2,401 \\ 3,720 \\ +0,100 \\ \hline 6,221 \end{array}$$

put zeros as a place holder.

2) 3,1 + 0,001 =

$$\begin{array}{r} 3,100 \\ +0,001 \\ \hline 3,101 \end{array}$$

1.5.2.3 REFERENCE SHEETS & REMINDERS

TENS	units	Tenths	Hundredth	Thousandths	Thousandths
7	6	3	2	9	4

- ✓ Always align the numbers before starting to add
- ✓ Respect every place value of the numbers
- ✓ Remember to put the comma in all your decimal numbers
- ✓ Position of the comma does not change.

EXERCISE

a) 0,2 + 0,003 =
b) 4,5 + 2,3 =
c) 3,5 + 56,3 =
d) 0,07 + 1,8 =
e) 3,8 + 1,6 =

MY TOOLBOX FOR LEARNING

1.5.3.1 MINI-LESSON – SUBTRACTING DECIMALS

EXAMPLES

1) 4-3, 42 =

Step 1: Align the numbers by adding zeros and a comma to the whole number.

Step 2: Subtract the, 0-2 is impossible so borrow from , it becomes 10-2=8

Step 3: Subtract the after giving back the borrowed , it become 0-4 borrow from units, it becomes 10-4 = 6

1.5.4.3 REFERENCE SHEETS & REMINDERS

- ✓ All decimals have commas
- ✓ A decimal is a number with a base which is in multiples of 10
- ✓ Decimal numbers are usually used in measuring
- ✓ A decimal is a part of a whole

IT'S YOUR TURN!

EXERCISES

1) = 2) = 3) = 4) = 5) = 6) =

MY TOOLBOX FOR LEARNING

1.5.5.1 MINI-LESSON -- COMPARING DECIMAL FRACTIONS

Use the following symbols to compare value of decimal fractions:

<	Is less than
>	Is greater than
=	Is equal to

Example

a) 4,21 < 42,1 b) 91,27 < 912,7

1.5.5.3 REFERENCE SHEETS AND REMINDER

- ✓ You compare from left to right
- ✓ Never leave any place value column when comparing

Step 4: Subtract the ones after giving back what has been borrowed it becomes 4-4=0

Therefore 4-3,42=0,68

IT'S YOUR TURN!

EXERCISE

1) 3,4-0,04= 2) 10-0,345 3) 0,1-0,01= 4) 6-3,25

REFERENCE SHEETS & REMINDERS

- ✓ Align the numbers well just like we do with whole numbers
- ✓ Align numbers well by adding zeros
- ✓ Adding zero helps s to have the same decimal places
- ✓ The comma comes after the ones

MY TOOLBOX FOR LEARNING

1.5.4.1 MINI-LESSON – Change fraction to decimals

A decimal is a number that has a comma.A fraction is a number with a denominator and a numerator. Below is an example of how a fraction can be changed to a decimal

Example 1

Take the fraction $\frac{7}{10} = 0,7$

Example 2

Take the fraction $\frac{74}{100} = 0,74$

IT'S YOUR TURN!

EXERCISE

1. Compare these decimals
   a) 0,42* 0,65

   b) 0,948*0,973

   c) 0,21*0.32

   d) 0,81*0,628

   e) 0,174*0,23

1.6 MULTIPLICATION AND DIVISION OF WHOLE NUMBERS

By the end of this Sub - Unit, you will be able to:	
multiply numbers by 3 digit numbers	*Mini Lesson 1.6.1*
divide whole numbers by 3 digit numbers	*Mini Lesson 1.6.2*
multiplying decimals by whole numbers	*Mini Lesson 1.6.3*

MY TOOLBOX FOR LEARNING

1.6.1.1 MINI-LESSON -- Multiply whole numbers to 3 digits

Answer the following multiplication questions

a) 7 x 3 = 21 b) 6 x 5 = 30 c) 9 x 2 = 18

d) 12 x 7 = 14

IT'S YOUR TURN!

EXERCISE

1. a) 9 x 0 = b) 3 x 0 = 2) 6 x 1 = b) 12 x 1 =
2. a) 3 x 5 = b) 4 x 6 = c) 8 x 3 =
3. a) 5 x 3 = b) 6 x 4 = c) 3 x 8 =

1)134 x34 =

2)There are 15 classroom at a school. How many children are at this school if each classroom is used by 45 children?

3)How many wheels are needed to make 25 4 wheeled cars .

MY TOOLBOX FOR LEARNING

1.6.2.1 MINI-LESSON – dividing whole numbers

A number that is being divided is called the **dividend.**
The number that is used to divide is the **divisor**.
The answer of a division equation is called the **quotient**.
This is the division sign ÷

$\frac{54}{6} = 9$ $\frac{21}{3} = 7$

1.6.2.2 EXAMPLES

Long division:

$$\begin{array}{r|l} & 31\text{r}17 \\ \hline 125 & 3892 \\ & -375 \\ \hline & 142 \\ & -125 \\ \hline & 17 \end{array}$$

IT'S YOUR TURN!

EXERCISE

1. Practise long division

a) 52 222 ÷ 323 = b) 34204 ÷ 274 = c) 61 304 ÷ 148=

d) 75 574 ÷ 586= e)26 846 ÷ 144= f) 63 885 ÷ 851 =

g) 80 658 ÷ 886 = h) 57 062 ÷ 351 =

MY TOOLBOX FOR LEARNING

1.6.3.1MINI-LESSON -- MULTIPLYING DECIMALS BY WHOLE NUMBERS

6 321
X 2,1
12 420
+ 18 063
30 48,3

IT'S YOUR TURN!

EXERCISE

1. 12 x 0,5 =
2. 21 x 0,30 =
3. 72 x 0,05 =
4. 1,2 x 115 =
5. 2 365 x 0,2 =

1.7 MULTIPLICATION & DIVISION OF DECIMALS

By the end of this Sub -Unit, you will be able to:	
multiply decimal X decimal up to 3 places	*Mini Lesson 1.7.1.*
divide decimals up to 3 places	*Mini Lesson 1.7.2*

MY TOOLBOX FOR LEARNING

1.7.1.1 MINI-LESSON – Multiplication of a decimal

136,42 x 3,1 =

136,42
X 3,1
409 260
+ 13 642
422, 902

NOTE WHEN WORKING OUT THE SUM IGNORE THE COMMA UNTILYOU GET TO THE ANSWER

IT'S YOUR TURN!

EXERCISE

Answer the following questions

1. 3,2x1,2=
2. 26,4x3,5=
3. 129,2x2,3=
4. 385,34 x4,2 =

MY TOOLBOX FOR LEARNING

1.7.2.1 MINI-LESSON – Division of decimals

Observe the following:

5 4 136 792 ÷ **10** = 54 136 79,2 We move the comma **1 place to the right**

67 23,4 563 ÷ **100** = 67 2345,63 We move the comma **2 places to the right**

46 7 12,782 ÷ **1 000** = 46 712 782 We move the comma **3 places to the right**

Note: 54 136,792

Dividing decimals by 10

When dividing using decimals, we must change the divisor into a whole number. To keep the equation in balance, what we do to the divisor we must do for the dividend.

1.7.2.2 EXAMPLES

a) 2,748 ÷ 1,2 = 2,29
Step 1: Multiply 1,2 x 10 = 12.
Step 2: 2,748 x 10 = 27,48
Step 3: 27,48 ÷ 12 = 2,29

b) 72,3 6 ÷ 3,6 =
Step 1:Multiply 3,6x10 = 36
Step2: 72,36x10 = 723,6
Step 3: 723,6 ÷ 36 = 20,1

EXERCISE

1)3,75 ÷2,5 2)6,012÷0,12 3) 75,15÷1,5 4) 10,8÷0,9

1.7.2.3 REFERENCE SHEETS & REMINDERS

- ✓ The answer after multiplying is called the product
- ✓ The number to be divided is the dividend.
- ✓ The answer we get after dividing is the quotient.

1.8 FINANCIAL TRANSACTIONS

By the end of this Sub -Unit, you will be able to:	
compute profit, loss as well as percentage profit and loss	*Mini lesson 1.8.1*
calculate hire purchase sales, tax and value added tax	*Mini lesson 1.8.2*
calculate discount, commission and simple interest	

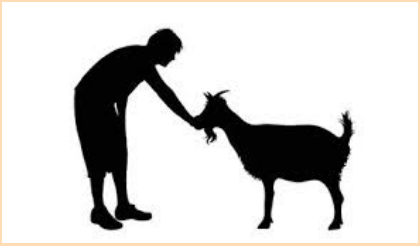
MY TOOLBOX FOR LEARNING

1.8.1.1 MINI-LESSON – Compute profit and loss as well as percentage of profit and loss

'Loss' is the opposite of 'Profit'. It is what happens when the businessperson has to sell at a lower price than they paid for the good.

Loss = Selling Price – Cost Price

Fred bought a goat for $50. His wife got sick and he had no money so he had to sell the goat to the first buyer who would take is. The buyer was willing to pay only $45.



$50 (Cost) - $45 (Selling Price) = $5 (Loss)

Fred unfortunately took a Loss of $5 on his goat. Poor Fred, he loved his goat and was hoping to make more money selling milk but he loves his wife more! We hope his wife gets better soon and he can buy another goat soon!

EXAMPLE

Mr Moyo bought a television set at $1 000 and sold it at $1 200.

Calculate a) profit b) percentage profit

a) Profit = selling price – cost price
= $1 200 – 1 000
= $200

b) Percentage profit = profit/cost price ×100
= 200/1000×100
= 20%

IT'S YOUR TURN!

EXERCISE

1. Calculate your profits.

	Cost	**Selling price**	**Profit**
a)	$80	$120	
b)	$200	$310	
c)	$325	$400	

2. What is the percentage of the Profit?

	Cost price	Profit	% profit
a)	$200	$50	
b)	$400	$80	

3. Calculate losses.

	COST PRICE	LOSS	% LOSS
a)	$300	$75	
b)	$120	$60	

MY TOOLBOX FOR LEARNING

1.8.2.1 MINI-LESSON -- Calculate hire purchases

In this lesson we will be dealing with buying things on hire purchase. A hire purchase, is an agreement between buyer and seller that allows the buyer to obtain the goods but complete payment over a period of time instead of paying the full price upfront. The buyer must instead pay a deposit, which is a portion of the total price. The rest of the money owing, called the balance, is paid in instalments, that is smaller portions at an agreement upon regularity monthly an agreed time.

1.8.2.2 EXAMPLES

Mr Moyo bought a bed costing $720. He a paid 20% deposit and paid the balance in 12 monthly payments.
Calculate monthly instalments.

Deposit = percentage deposit ×cost prise

$$= \frac{20}{100} \times \$720$$

$$= \$144$$

Balance = cost price – deposit

$$= \$720 - \$144$$

$$= \$576$$

Monthly instalments = balance/number of months(time)

$$= \frac{\$576}{\$12}$$

$$= \$48$$

Tomson bought a blanket for $200. If 15% value added tax is charged how much did he pay for the blanket?

Step 1: value added tax = 15/100×$200=$30

Step 2: amount paid =$ 200,00+$30,00=$230,00

IT'S YOUR TURN!

EXERCISE

1. Mr Moyo bought a TV costing $600 on hire purchase. He paid a deposit of 20% and paid the balance in six months.
   a) Calculate deposit.
   b) Calculate the balance
   c) Calculate instalments over 12 months.

2. Mrs Dube bought a radio that cost $300 on hire purchase. She paid 10% deposit and paid the balance in 6 months.
   Calculate :
   a) deposit b) balance c) monthly instalments.

3. Mr Dube bought a TV marked $300. If he was charged 12% value added tax.
   a) calculate value added tax
   b) amount he paid.

MY TOOLBOX FOR LEARNING

1.8.3.1 MINI-LESSON -- Calculate simple interest

If you deposit money in a bank account for a long time, it will earn interest. The money that you invest or deposit is called principal. The principal accrues interest at a certain rate per year. So the total interest accrued is calculated by multiplying interest per year by time. If you added principal to interest you get amount.

$$\text{Simple interest} = P \times R \times \frac{T}{100}$$

Amount = principal + simple interest

TEXT: please note that per annum means per year.

1. Calculate interest earned on $1000 invested for 3 years at 15% p.a

1.8.3.2 EXAMPLES

1. Calculate interest accrued on $5000 invested for 5 years at a rate of 20% per annual calculate amount

principal = $5 000
rate = 20% per annum
time = 5yrs

a. Simple interest = P × R × T/100
= $\frac{\$5000 \times \$20 \times 5yrs}{100}$
= $ 5000

b. Amount = principal + interest
= $5000 + $5 000
= $10 000

1.8.3.3 REFERENCE SHEETS & REMINDERS

Simple interest = $\frac{P \times R \times T}{100}$

Amount = principal + simple interest

Please note that per annum means per year.

EXAMPLE 1

Calculating interest that has time that includes a fraction.

Principal = $5 000
Rate = 10%
Time = 1 1/2

INTEREST = $5 000 x $\frac{5}{10}$ x1,5 = $3 750

EXAMPLE 2

Calculating interest if the rate has a fraction

Principal = $3 000
Rate = $10\frac{1}{2}$
Time = 2 years
Interest = $3 000 x 10,5 x2 = $63 000

EXAMPLE 3

Principal = $2 840
Rate = 10%
Time = 3months

$$\text{Interest} = \$\frac{2\,840}{1} \times \frac{10}{100} \times \frac{3}{12}$$

IT'S YOUR TURN!

1.8.3.4 TASK, ACTIVITIES or EXERCISES

1. Complete the table below

PRINCIPAL	RATE	TIME	INTEREST
$1 000	10%p.a	2 years	
$2 000	15%p.a	3 years	
$3 000	20%p.a	$2\frac{1}{2}$ years	
$ 4 000	5%	6months	

1.9 MONEY

By the end of this Sub -Unit, you will be able to:	
prepare and interpret invoices	*Mini lesson 1.9.1*
complete deposit and withdrawal slips	*Mini lesson 1.9.2*
analyse financial transactions	*Mini lesson 1.9.*
calculate postal rates	*Mini lesson 1.9.*
prepare simple personal and household budget	*Mini lesson 1.9.*

MY TOOLBOX FOR LEARNING

1.9.4.1 MINI-LESSON – Prepare and interpret invoices

An invoice is a commercial document issued by the seller for the buyer. It is very helpful especially when there are many items being sold and the calculations have to be checked. They might look different from one seller to another but they will all have similar information:

a. Name of Shop

b. Date of Sale

c. Products being sold

d. Quantity of goods being sold

e. Total amount to be paid

Please note where each piece of information is on the invoice.

If the SELLER put a PAID stamp on it or writes the word 'PAID' and signs it, it then becomes a **'Receipt'** which is proof of payment.

A. Write up your own Invoice:

Price list

1 packet of Bonbon creams	$8.50
1 packet of cookies	$ 2.50
1 Cola Drink	$7.50
3 Chocolate Bars	$9.50
1 Fried Tomato	$6.50
1 peanut	$0.01

B. Here is $10.00 to spend at a local shop. Write up your own Invoice for the things you would like to purchase with that $10.00.

EXAMPLE

Susan bought the following goods from Mr Dhoro's store;
2 packets sugar, 3 green bars, 1 packet rice and 2 packets salt. Write an invoice for the goods bought.

INVOICE
Dhoro store
25/06/2020

2 packets sugar at $26.30 each	=	$52.60
3 green bars at $11.35 each	=	$34.05
2 packets salt at $8.50 each	=	+$18.50
Total cost		$122.15

IT'S YOUR TURN!

1. **INVOICES : ACTIVITY : look at the invoice given.**

4 packets sugar	= $ 16.48
3 green bars	= $12.30
2 bottles paraffin	= $19.50
5 packets rice	= $50.75
Total	=

Make an invoice for the goods below

1) a) 1 packet sugar
   b) green bar
   c) 1 bottle paraffin
   d) 1 packet rice

MY TOOLBOX FOR LEARNING

1.9.2.1 MINI-LESSON – COMPLETE WITHDRAWAL & DEPOSIT SLIPS

When you want to save money or invest money you can put it in a savings account of a bank. To put money into your saving account is to deposit. The money that remains in your bank account after withdrawal or deposit is the balance. To deposit money in your account you need to complete a deposit slip. When you want to get money from the bank you need a withdrawal slip.

EXAMPLE 1

Mr Dube had $250 in his account. If he deposited $500, what is the balance. He later made a withdrawal of $200. What is the new balance?

EXAMPLE 2

Mr Masara's bank account had a balance of $250 March .He made a deposit of $575 in April.He then made a withdrawal of $350 on 12 May .

Now answer the following questions

1) What is in the bank account of 15 April.
2) How much was withdrawn on 12 May?
3) What was the resultant balance after the withdrawal?

1. Bank balance = $200,00
   Deposit = $75.00
   Deposit = $575,00
   Bank balance = $850,00
2. $350,00 was withdrawn on 12 May
3. Balance = $ 350,00
   Withdrawn = $-350,00
   Resultant balance = $ 500,00

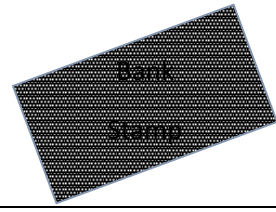
1.9.2.3 REFERENCE SHEETS & REMINDERS

DEPOSIT SLIP

CHIMUTI BUILDING SOCIETY

DATE :

NAME OF ACCOUNT HOLDER :
ACCOUNT NUMBER :
AMOUNT DEPOSITED IN WORDS :
AMOUNT DEPOSITED IN FIGURES :
NAME OF DEPOSITOR :
SIGNATURE : ..... ID Number.....

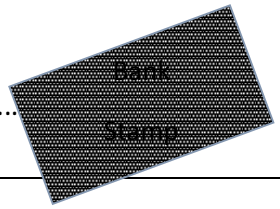


SAMPLE OF A WITHDRAWAL SLIP

WITHDRAWAL SLIP .

GOMO BUILDING SOCIETY

DATE:
NAME OF ACCOUNT HOLDER :
ADDRESS :
ACCOUNT MEMBER :
AMOUNT WITHDRAWAL IN WORDS :
AMOUNT WITHDRAWAL IN FIGURES :
SIGNATURE ..... ID Number.....



IT'S YOUR TURN!

EXERCISE

Draw and fill in a deposit slip as shown in the examples above

MY TOOLBOX FOR LEARNING

1.9.3.1 MINI-LESSON -- Calculation postal rates

Post office is responsible for sending letters, parcels and money. When you want to send any of these, you pay charges to post office called postal rates. Postal rates are charged according to weight and distance. The more a parcel weighs the more postal rates you pay. Postal rates for parcels and letters to other countries are higher because of the distance. So in order to send letters or parcels you need to buy stamps from the post office.

SAMPLE OF POSTAL RATES.

COUNTRY TO	Letters	Parcels
ZIMBABWE	Up to 20g 50c 21g to 100g $0.80 101g to 250 $1.30 251g to 500g $1.80 Over 500g $2.00	Up to 1kg $4.00 Over 1kg to 3kg $6.30 Over 3kg to 5kg $9.50 Over 5kg to 10kg 14.00

Use the above rates to calculate the cost of the following:

a) a letter weighing 265g
b) a letter weighing 540g
c) a parcel weighing 4kg

EXAMPLES

Using the postal rates above find postage for

a) a letter weighing 250 g
b) a letter weighing 600 g
c) a parcel weighing 9 kg

SOLUTION

letter weighing 250 g =$1,30
letter weighing 600 g=$2,00
parcel weighing 9 kg =$14,00
total postage =$17,30

IT'S YOUR TURN!

EXERCISE

1. Postal rates for Zimbabwe postage

Up to 100g	$0.80
Over 100g to 250g	$1.15
Over 250g to 500g	$1.70
Over 500g to 1kg	$2.40

1)John posted five letters each weighing 70g, 95g, 200g, 625g, Peter posted four letters each weighing 125g, 175g, 325g and 525g.
How much does each pay?

MY TOOLBOX FOR LEARNING

MINI-LESSON –
Prepare simple personal and household budget

In this lesson, we will deal with budget. This means planned use of money. Let's say you have $100. Now write down how you would spent your money

1.9.4.1 EXAMPLES

Let's say you have $200. Plan a budget.

Exercise books	=	$30,00
Pens	=	$10,00
Covers	=	$20,00
School shoe	=	$70,00
School uniform	=	$70,00
Total	=	$200,00

1.9.4.2 REFERENCE SHEETS & REMINDERS

- ✓ Budgeting is money management. When you budget use the following steps.
- ✓ How much money you want to spend.
- ✓ Think about what you want to spend the money on.
- ✓ Try not to spent money on things that you do not need.
- ✓ Compare how much you have with the price of goods.
- ✓ Look at how much you can save

IT'S YOUR TURN!

ACTIVITY

You have $500 which you would want to spend on food, water, electricity, transport, clothes and rent
Remember a good budget leaves money to save.

1.10 T I M E

By the end of this Sub- Unit, you will be able to:	
• express and write time in 12 and 24-hour notation	Mini Lesson 1.10.1
• add and subtract time units	Mini Lesson 1.10.2
• write dates in SI notation	
• solve problems involving time	Mini Lesson 1.10.3

MY TOOLBOX FOR LEARNING

1.10.1 .1 MINI-LESSON
12 & 24-HOUR NOTATION

Time can be expressed in 2 ways, using a 12-hour clock or using a 24-hour clock.

During the activity we will convert time from 12-hour notation to 24-hour notation.

Remember that 12-hour notation is divided into two am an d pm. The first 12 hours are on the AM ('ante meridie s') and the second 12 hours after midday are referred to as the PM ('post meridies')
When the 24-hour notation is used the day starts at 0000hrs which is midnight and therefore midday occurs at 1200hrs. in 24-hour notation you continue counting hours from 12 noon to midnight and it ends once more at 0000hrs
eg 1pm = 13 00hrs.

1.10.1.2 EXAMPLES

7.30am=0730hrs 9.50pm=2150hrs

12.25am=0025hrs 3.30pm=1530hrs

1.10.1.3 REFERENCE SHEETS & REMINDERS

Notice that the 12-hour clock separate hours and minutes with a period:

5.45am 10.30pm 3.31am 8.12pm.

The 24-hour clock uses a semi colon: 0545 hrs, 2230 hrs, 03:31 hrs, 2012 hrs

STANDARD UNITS OF TIME.

60 seconds	1 minute	28-31 days	1 month
60 minutes	1 hour	12 months	1 year
24 hours	1 day	365 days	1 year
7 days	1 week	52 weeks	1 year
4 weeks	1 month		

IT'S YOUR TURN!

1.10.1.4 TASK, ACTIVITIES or EXERCISES

Convert to 24-hour notation

1. a) 5.00am b) 2.30pm c) 10.50am d) 3.10pm

2. a) 2.30am b) 12.00 noon c) 11.45 am d) 4.30pm

MY TOOLBOX FOR LEARNING

1.10.2.1 MINI-LESSON -- ADD AND SUBTRACT TIME

During the activity we will be adding and subtracting time. As we add and subtract time, we need to remember that 1 hour is equal to 60 minutes. When we are subtracting time in different periods of the day that is am and pm first convert to 24hr notation.

When subtracting time, first subtract minutes then hours. If the minutes on top are less than the minutes below, you need to borrow 1 hour, convert it to minutes and then add it to the minutes. Remember to convert to 24hr notation when the times are of different periods of the day. When adding time first add minutes then hours. If the minutes exceed 60 minutes, divide by 60, add the whole number to hrs and write the remainder under minutes.

S.I notation means international notation. It is a standard short form that is used around the world. When writing dates in S.I notation you write YEAR-MONTH-DATE for example, 20 may 1950 is written as 50/05/20.

1. 12 January 1990 2. 15 October 1968
3. 30 November 1999 4. 26 June 2020

Answer : 1) 1990-01-12 2) 1968-10-01 3)1999-11-30 4) 2020 -06-26

1.10.2.2 EXAMPLES

Hrs	**Minutes**
4	.10 pm
-1	.30 hrs
2	.40

2. How much time is there between 7.40am and 2.50pm?
One way to answer is to convert to 24hr notation, then subtract:
7.40am = 07:40hrs 2.50pm = 14:50hrs

	Hrs		Mins	
1	4		5	0
-	7		4	0
	7		1	0

The answer is 7 hours and 10 minutes difference

Here is another example,

Hrs	Mins
4	3 0
+ 7	4 5
1 1	7 5

Look at the addition to the left. Notice that minute in the answer exceed the total in 1 hour (60minutes) and so must be adjusted. Remember adding time is not like adding decimals, based on a system of Tens, Thousands. It is

Hrs	Mins
4	3 0
+ 7	4 5
1 1	7 5
+ 1	- 6 0
1 2	1 5

based on a system of 60 minutes and 12 hours. So you must reduce the 75 minutes by 60 and then add those 60 extra minutes to the Hour Side of the by increasing that side by 1 hour.

1.10.2.3 REFERENCE SHEETS & REMINDERS

i) When adding time first add minutes then hours.
ii) Please note that if the minutes are 60 or more subtract 60 minutes from total number of minutes and add one hour to hours.
iii) Repeat the process if number still 60 or more.

a) when subtracting, first subtract minutes then hours.
b) If the minutes on top are smaller than minutes below, borrow 1 hour from hours, convert it to minutes and add to minutes.
c) When writing dates in S.I notation first write year then month and lastly date for example 97/12/15

IT'S YOUR TURN!

EXERCISES

1)

	Hrs	Mins
	4	3 0
+	1	2 5

2)

	Hrs	Mins
	3	2 0
-	1	4 0

3)

	Hrs	Mins
	3	3 0
+	4	1 0

4)

	Hrs	Mins
	5	4 0
+	3	3 0

5) Calculate how much time is there from 7.30am to 1.00pm?

ACTIVITY 1: MEMORY GAME
Draw up 2 sets of cards:

One is written 12 hour notation

10.00am 10.30pm 12.15pm 12.30am 5.10am

The other is written in 24 hr notation

1000hrs 2230hrs 1215hrs 0030hrs 0530hrs.

Put the cards upside down. Take turns with your friend to pick and match the cards. One with most cards wins the game.

ACTIVITY 2:

1) Make a clock face.
2) Show ¼ to eight in the clock face.
3) If John arrives at school 20mins before, show the time he arrived.
4) If Mary arrived 25mins late, show the time he arrived.
5) Show ¼past 7 on the clock face. If the watch is ten minutes ahead, show correct time.

IT'S YOUR TURN!

ACTIVITY 3: Zimbabwean time is 12.15pm
Write the following cards.

Spain 1 hr 30 mins behind	Brazil3hrs 20mins Behind	Mexico 4hrs 30mins behind
Iran 2hrs 30mins ahead	India 2hrs 40mins Ahead	China 5hrs 50mins ahead

Puts the cards upside down. Now in pairs take time to pick cards and find times of countries given.

MINI LESSON- Read and write time in S.I notation
S.I notation means international notation. It is a standard short form that is used around the world. When writing dates in S.I notation you write YEAR-MONTH-DATE for example, 20 may 1950 is written as 50/05/20.

1. 12 January 1990
2. 15 October 1968
3. 30 November 1999
4. 26 June 2020

Answer :

1) 1990-01-12
2) 1968-10-01
3) 1999-11-30
4) 2020 -06-26

Exercise
Write the following dates in S.I notation

1)25 June 1976 2) 22 April 2000 3)18 October 1996
4)9 November 2008 5) 21 August 2011 6)24 April 1974

MY TOOLBOX FOR LEARNING

1.10.3.1 MINI-LESSON
– Problem solving around time

In this unit we will solve problems in real life situations that will require addition and subtraction of time specifically looking at timetables and other situations concerning time.
In this lesson, we will interpret bus timetables and then answer questions.
Here are some tips:
- Depart means leave.
- To calculate stoppage time, subtract arrival time from departure time.
- To calculate the total time of a journey, subtract departure time from arrival time

Analyse (Look closely at) this timetable.

Zvishavane	Depart	07.30hrs
Shurugwi	Arrive	08.35
	Depart	09.50hrs
Gweru	Arrive	10.30hrs
	Depart	11.00hrs
Kwekwe	Arrive	12.10hrs
	Depart	12.30 hrs
Kadoma	Arrive	14.20hrs

1.10.3.2 EXAMPLES

1. How long does the bus stop In Shurugwi?

Hrs		Mins
9	:	5 0
- 8	:	3 5
1		1 5

The bus stops 1 hour and 15 minutes in Shurugwi.

2. How long does it take to travel from Shurugwi to Gweru?

	Hrs		Mins
1	0	:	3 0
-	9	:	5 0
	1		1 5

It takes 1 hours and 15 minutes to travel from Shurugwi to Gweru

***Note that arriving time is written on top.

1.10.3.3 REFERENCE SHEETS & REMINDERS

When a clock is said to be 15 mins ahead, it means that that is past the actual real time so you must subtract 15 mins from the clock time.

When a clock is said to be behind, for example 25 minutes behind, you must ADD 25 mins to know the actual real time.

IT'S YOUR TURN!

1.10.3.4 EXERCISE

Now do the following exercise using the table above.

1. How long does the bus stop in Gweru?
2. How long does the bus take to travel from Gweru to Kadoma?
3. A watch which shows 9.50am is 35 minutes ahead. Find the correct time.

1.11 COMBINED OPERATIONS

By the end of this Sub- Unit, you will be able to:	
Solve combined operation problems-	Mini Lesson 1.11.1
Solving Life Problems using combines operations	

MY TOOLBOX FOR LEARNING

1.11.1.1 MINI-LESSON
-- Addition and subtraction

For example,

$6 - 9 + 8 = ?$

$= 6 + 8 - 9$

$= 14 - 9 = 5$

Calculate the following:

1) $20 - 18 + 15$
2) $8 + 7 - 9$
3) $16 - 12 + 18 - 9$
4) $20 - 4 + 8 - 2$

1) $16 - 9 + 12$
2) $8 - 5 + 12$
3) $54 - 26 + 39 - 8$
4) $7 + 9 - 11$

When dealing with multiplication and division work from left to right

For example, $40 \div 5 \times 3 \div 2$

$= 8 \times 3 \div 2$

$= 24 \div 2$

$= 12$

Calculate the following;

1) $10 \times 5 \div 2 \times 4$
2) $6 \times 4 \div 8 \times 11$
3) $15 \div 3 \times 6$
4) $14 \times 8 \div 4$

Calculate the following:

1) $20 \div 5 \times 4$
2) $15 \times 3 \div 5$
3) $12 \times 6 \div 8$
4) $36 \div 9 \times 5$

1.11.1. 3 Reference Sheets & Reminders

When calculating basic mathematics operations, here is a handy guide to remind you the correct order to be used in addressing them in: The order of precedence. Brackets of Multiplication and Division, Addition and Subtraction.

IT'S YOUR TURN!

1.11.1.4 EXERCISES

1. Solve the following problems.

a) $2 \times (4+6)$ b) $(25 - 15) \times 9$

c) $100 - 20 \times (3+1)$ d) $5 \times 8 + 7 \times 3$

2. Now own your own try the following.

a) $(6+3) \times 4 + 11$ b) $(8+3) \times 4 \div 4$

c) $26 - 8 \times 3$ d) $10 - (4 \times 2)$

3. Solve

a) $2 \times 8 \div 4$ b) $5 \times 8 \div 10$

c) $36 \div 9 \times 3$ d) $28 \div 7 \times 9$ e) $4 \times 8 \div 7$

1.12 DATA HANDLING

By the end of this Sub- Unit, you will be able to:	
interpret data from tables	Mini Lesson 1.12.1
represent data on tables	Mini Lesson 1.12.1
read and extract information from graphs and pie charts	Mini Lesson 1.12.2 Mini Lesson 1.12.3

MY TOOLBOX FOR LEARNING

1.12.1.1 MINI-LESSON
-- interpreting tables

In this unit we will practise using tables, reading and extracting data and interpreting information from graphs and pie charts. We will also solve problems using information on tables, graphs and pie charts.

The table below shows number of customers who came to TM supermarket during the physical distancing during the Covid-19 virus pandemic.

DAY	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
No. of PEOPLE	54	71	48	42	35	62	85

Answer the following questions

1. Which day had: a) least customers? b) most customers?
2. What is the total number of customers who came during the weekend?
3. How many customers came over to the TM supermarket during the week?
4. Find the average for the week.

1.12.1.2 EXAMPLES

The table below shows race times of athletes participating in a 100m race.

NAME	JOHN	PETER	THOMAS	TAFARA	JAMES	SAM
TIME in seconds	13	12	15	11	17	14

1. Who is the fastest runner? (Tafara) (he took the least time).
2. Who came last in the race? (James) (he took the most time).
3. Who came second in the race? (Peter.)

IT'S YOUR TURN!

EXERCISE

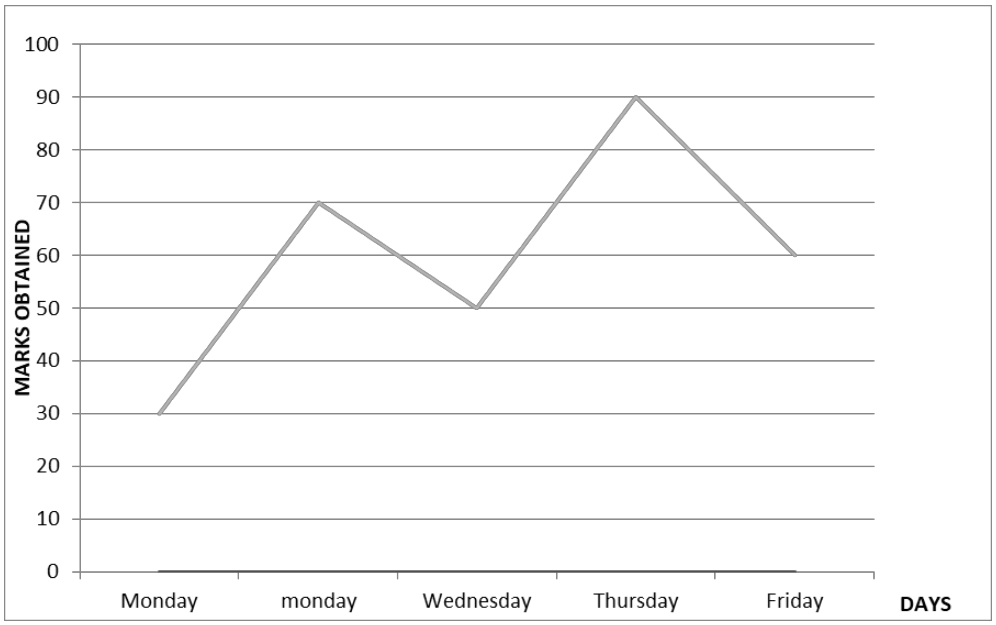
1) Draw a table that shows the number of beds and vegetables a group of children made and planted in their school garden. Use the information below.

Tomatoes-5
Beans -4
Rape -3
Onions -2
Cabbage -6

MY TOOLBOX FOR LEARNING

1.12.2.1 MINI-LESSON -- Interpreting graphs

In this lesson we will look at different types of graphs. Below is a line graph and specifically a jagged-line graph. It plots (lays out) information on the graph and connects lines to show the changes in the points of data (information).

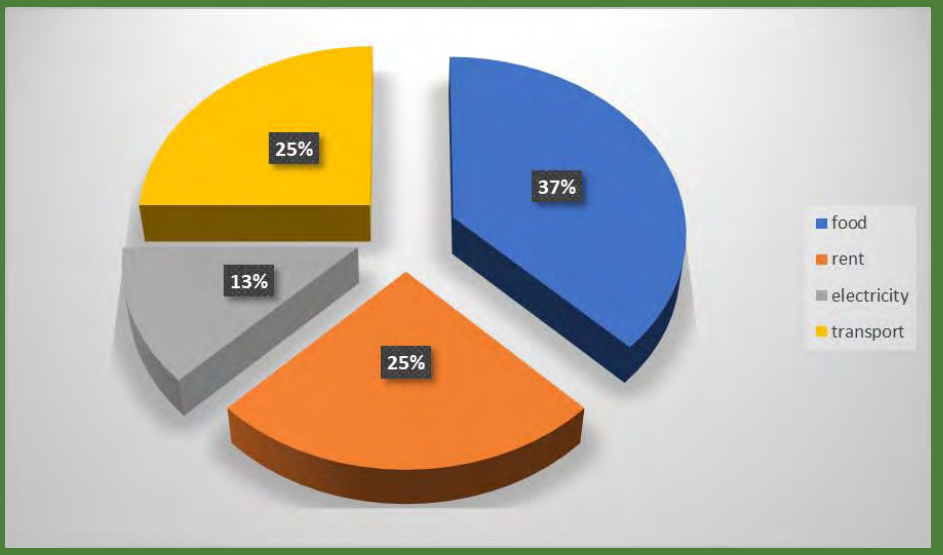


Please note that the vertical axis shows marks obtained. The lines between the points show how John's marks changed from Monday to Friday.

Exercise
Answer the following questions.
1. What was John's
a) highest mark? b) least mark?
2. How many more marks did he obtain on Thursday than Friday.
3. Calculate the average mark.
NB. The dots represent marks obtained.
Please note that on graphs, there is the vertical axis and horizontal axis. The vertical shows value where as the horizontal axis shows what is being compared

EXAMPLES

The pie chart below shows how Mr Moyo who earns $1600 per month spends his money.



1. What fraction is spent on
 a) food b) rent c) transport d) electricity
2. How much is spent on
a) food b) rent c) transport d) electricity

2)Draw a bar graph showing marks obtained by Jonh in five tests.All the tests were out of 30.

Test1- 20
Test 2- 30
Test 3- 25
Test 4-25
Test 5- 30

TEST	1	2	3	4	5
MARKS	20	30	25	25	30

REMINDERS

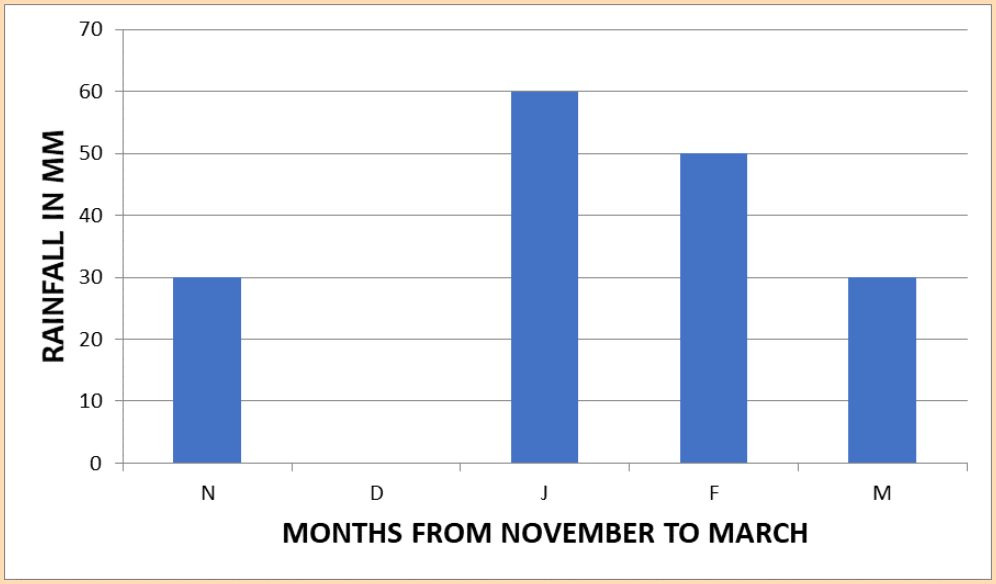
A pie chart is a circle which is divided to show required information. A bar graph shows information by means of bars. The vertical axis shows values and the horizontal axis shows categories being compared.

IT'S YOUR TURN!

1.12.2.4 EXERCISE

GRAPHS

1. Look at the bar graph that shows rainfall received in five months in region 5 in Zimbabwe.

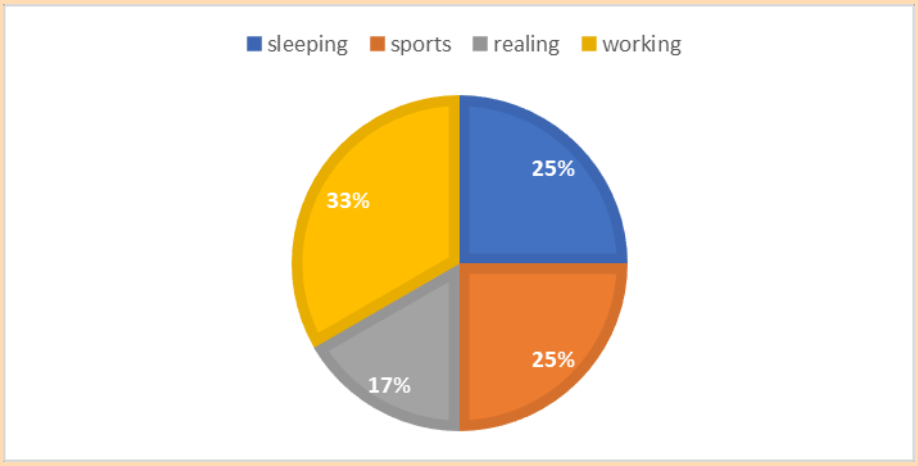


1) Which month received
2) a) the least rainfall b) highest rainfall?
3) How much rainfall was received in December?
4) Find the average rainfall in the five months.

MY TOOLBOX FOR LEARNING

1.12.3.1 MINI-LESSON – READ & EXTRACT INFORMATION FROM PIE CHARTS

In this activity we will be looking at pie charts, reading and interpreting information. We will also answer questions and solve problems using pie charts.
Use the pie chart below to answer the questions below. It shows how Mr Moyo spends his day.



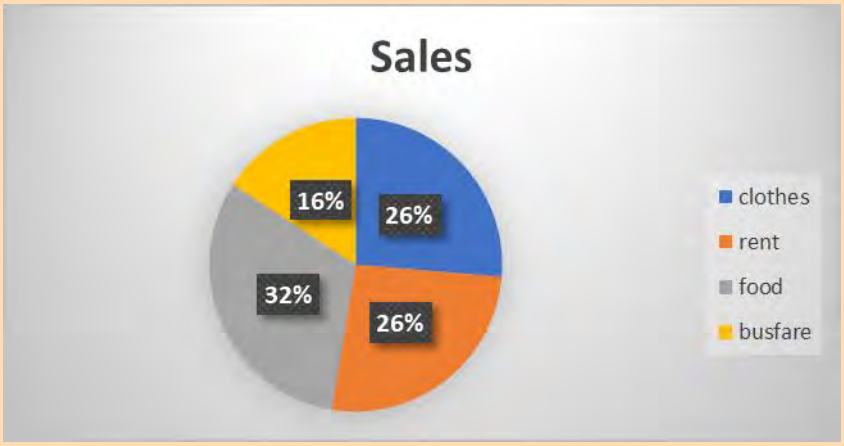
1. What fraction of the day is spent on
a) working? b) sleeping?

2. How many hours does Mr Moyo spend on
a) relaxing b) sports

1.12.3.3 REFERENCE SHEETS & REMINDERS

Always remember that a pie chart is a circle that is divided in parts or segments each part representing given data.

IT'S YOUR TURN!



EXERCISE

Use the chart above to the give the amount needed for clothes, rent, food, busfare if the budget was of a person who earns $5 200

UNIT 1 EXAM PRACTICE

ANSWER ALL QUESTIONS

1. Write in Words

a) 100 b) 789 c) 23 424 d) 651 275 e) 674 748

2. Round off to the nearest hundred.

a) 102 b) 1 567 c) 12 709 d) 434 892 e) 3 557 123

3. Select the equivalent Arabic numeral

(a) V

A 10 B 21 C 5 D 32

(b) XXIV

A 300 B 153 C 24 D 42

(c) XL

A 51 B 45 C 67 D 40

(d) L

A 60 B 50 C 67 D 40

(e) CC

A 200 B 100 C 400 D 300

4. Select the equivalent Roman Numeral

(a) 51

A LI B LX C LXID C

(b) 100

A XXXX B C C XIX D CCC

(c) 201

A CC B CI C XXV D M

(d) 891

A DCVIV B DCCCXCI C M D CCCI

(e) 1 000

A M B C C D D N

5. Write following in index form
(a)100 (b) 10 (c) 1 000 000

6. What is the value of these numbers?
(a)42 (b)7 4 (c) 9 3 (d)55

7. Identify the percentage value
(a) 4/5
A 20% B 30% C 50% D 80%

(b) 7/10
A 90% B 40% C 70% D 10%

(c) 22/50
A 22% B 44% C 33% D 66%

(d) 2/25
A 10% B 5% C 11% D 8%

(e) 1/5
A 20% B 60% C 40% D 50%

(f) 17/25
A 78% B 68% C 88% D 98%

(g) 3/4
A 75% B 85% C 95% D 35%

(h) 21/25
A 24% B 84% C 64% D 54%

(i) 3/5
A 75% B 70% C 60% D 90%

j) 31/50
A 62% B 82% C 42% D 92%

8. Calculate the following
(a) 40% of 120 (b)30% of 600 (c) 25% 1000

9. Calculate the following
(a) 10 ½% of 400g (b) 11 % of 100g (c) 250g as a percentage of 2kg

10. Express the following as a percentage
(a) 18 hrs as a percentage of a day (b) 3 days as a percentage of 30 days (c) $60 as a percentage of $160

11. A gardener had 400 heads of cabbage in his garden. He sells 300 heads. Find the percentage increase/decrease of the heads of cabbages remaining in the garden?

12. The bus fare from Zishamba to Zvishavane was $150.The operators increased to $250. What was the percentage increase?

13. 529+101=

14.375 425+402 191=

15.9 429 586+563 249=

16.405-113=

17.635 129- 221 345=

18. Give the place value of the highlighted digits
(a) 46,7013
A Tens B units C hundreds D Tenths

(b) 2,906
A thousandths B tenths C hundredths D Units

(c) 579,178
A Ten thousandth B units C thousandths D Tenths

(d) 782,691
A tenths B hundredths C units D fractions

(e) 557,289
A hundredths B units C thousands D ten thousandth

19. Expand the following whole and decimal numbers.
(a) 43 8301 (b) 0,0924 (c) 0,6715 (d) 134 537
(e) 4,9821

20. Answer the following
(a) 0,12 + 0,006 + 0,4 +0,5377= (b) Find the sum of 0,9 and 0,003=
(c) Increase 0,236 by 0,634 = (d) What is the total of 0,42 and 0,45=

21. Mr Dube had a rope measuring 2,6m. Rudo came with another rope 1,6m to join to it. How long is the pieces of rope now?

22. 60cm+34,4=…….?

23. 900 - 3,4 =

24. 5,400 - 3,2 =

25. Decrease 102,56 by 3,4

26. What is the difference between 4,5 an 2,3

27. Take 88,43 away from 96,246

28. Mrs Zondo has a mango tree that is 6,5m high in her yard. How much does she need to cut , for it to become 4m?

29. If Jeffrey is 1,6543m and Craig is 1,5632m.How much taller is Jeffrey than Craig?

30. Find the product
(a) 64 x 2 = (b) 213 x 5 = (c) 412 x 7 = (d) 2 423 x 3 =

31. Find the product
(a) 102 x 30 = (b) 22 x 14 = (c) 1156 x 23 = (d) 345 x 13 =
(e) 632 x 25 =

32. Solve the following problems
(a) What is the cost of a dozen loaves of bread if one loaf costs $ 29,50?

(b) A school has 21 classes and each class has 44 children each. How many children go to that school?

(c) There are 25 rows of trees in a plantation. If in each column there are 15 trees, how many trees are in this plantation?

33. Find the product of the following

(a)	1,41 x 45 =	(b)	123,1 x 15 =	(c)	24,23 x 33 =
(d)	2,12 x 25 =	(e)	17,643 x 54 =	(f)	21,34 x 10 =
(g)	2,1 x 66 =	(h)	45,63x16=	(i)	21,3 x 23 =
(j)	4,62 x 46 =				

34. Find the product of the following

(a)	211,3x52=	(b)	62,1x6,4=	(c)	431,65x7,1=
(d)	6,2x1,2=	(e)	4,355x5,6=	(f)	0,1x1,22=
(g)	5,22x9,4=	(h)	6,2x1,34=	(i)	7,1x3,46=
(j)	1,1x3,6				

35. Find the quotient

(a)	72,36 ÷ 1,2 =	(b)	7,2 ÷ 1,2 =	(c)	5,6 ÷ 1,8 =
(d)	8,1 ÷ 1,08 =	(e)	2,55 ÷ 1,5 =	(f)	6,3 ÷ 1,25 =

36. Solve the following problems

(a) Jorum bought a jacket at $20 and sold it at $24. Calculate the profit.							
	A	$44	**B**	$4	**C**	$8	**D**	$16
(b) Mr Moyo bought a car for $400 and sold it at $500. Calculate percentage profit made							
	A	10%	**B**	20%	**C**	25%	**D**	100%
(c) Tafara bought tomatoes for $200 and sold them at $150. Calculate loss made.							
	A	$200	**B**	$350	**C**	$100	**D**	$50
(d) Joseph bought a watch at $800 and sold it at $400. Calculate percentage loss made.							
	A	400%	**B**	1200%	**C**	50%	**D**	25%
(e) Mr Moyo bought a jacket at $600 and later sold it at $800. Calculate percentage profit.							
	A	50%	**B**	33,3%	**C**	25%	**D**	70%

37. Solve the following problems

(a) Patrick bought a pair of shoes for $20 and sold them at $30. Calculate profit made.

(b) Susan sold a jacket at $100 after buying it at $80. Calculate percentage profit made.

(c) Temba bought a toy for $40 and sold it at $32. Calculate the loss that he made.

(d) Mr Dude bought a bicycle for $50 and sold it at $30. Calculate percentage loss.

(e) Mr Moyo bought a shirt at $100 and sold it at 20% profit calculate the profit made.

38. Solve the following problems

(a) Sekai bought a television set that cost $1 200 on hire purchase. She paid 20% deposit and paid the balance in 12 months. Calculate deposit paid.							
	A	$80	**B**	$120	**C**	$240	**D**	$960
(b) John bought a ward robe costing $840 on Hire Purchase. He paid a deposit of 10% and paid the balance in 6 months. Calculate monthly instalment.							
	A	$84	**B**	$126	**C**	$96	**D**	$80
(c) Tatenda bought a bicycle costing $600 on hire purchase. If he paid 20% deposit. Calculate the balance to be paid in 8 months.							
	A	$60	**B**	$480	**C**	$80	**D**	$120
(d) Mr Moyo bought a bed costing $960 in hire purchase. If he paid a deposit of 20% and paid the balance in 12 monthly payments. Calculate monthly instalment							
	A	$128	**B**	$160	**C**	$68	**D**	$64
(e) Mr Dube bought a car for $8 400 on hire purchase. He paid a deposit of 20% and was charged 10% interest on the balance. Calculate interest charge.							
	A	$672	**B**	$1 680	**C**	$6 720	**D**	$627

39. Mr Takaendese bought a motorcycle costing $480 on hire purchase. If she paid a deposit of 20%

(a) calculate deposit? (b) calculate balance ?

(c) if he paid the balance in 12 months, calculate monthly instalment?

40. Mrs Pepukai bought a washing machine worth $360 on hire purchase. If he paid a deposit of 10% and paid the balance in 6 months. Calculate

(a) deposit (b) monthly payments

Solve the following problems

41. Calculate the interest earned on $2 000 at 15% p.a for 3yrs								
	(a)	$600	**(b)**	$300	**(c)**	$900	**(d)**	$400
42. Mr Moyo invested $1 000 for five years in a bank. The interest rate was 20% p.a. Calculate the interest								
	(a)	$1 000	**(b)**	$200	**(c)**	$400	**(d)**	$1 200
43. Calculate interest on $2 700 for 2 years at 10% p.a								
	(a)	$270	**(b)**	$540	**(c)**	$1500	**(d)**	$700
44. Calculate total amount on $5000 at 15% p.a for 3 yrs								
	(a)	$2 250	**(b)**	$7 250	**(c)**	$2 750	**(d)**	$5 750
45. Calculate interest on $1 500 at 20% p.a for 2 years.								
	(a)	$600	**(b)**	$300	**(c)**	$2100	**(d)**	$1 800

46. Moyo invested $3000 for 3 months at 6% interest per annum. Calculate

(a) simple interest (b) total amount

47. Mr Tembo invested $4 000 for 18 months at 12% interest per annum. Calculate (a) simple interest (b) total amount

48. Mr Tembo invested $4000 for 30 months at 12% interest per annum.

(a) simple interest (b) total amount

49. Calculate the total amount to be paid on $2 000 for 11/2yrs at 15% interest per annum.

50.Below is a price list of goods to answer questions a-e

MOYO STORE

2kg Sugar $28,55
2kg Rice $24,50
2kg Omo $48,50
2kg Flour $23,50
2l Cooking oil $52,30
2l Paraffin $38.50
500g Matemba $41,75

(a) John bought 4 packets of sugar from Mr Moyo's store. How much did he pay for the sugar?							
A	$10	**B**	$112	**C**	$114.20	**D**	$116
(b) If John gave the shopkeeper 6 $20 notes, how much change was he given?							
A	$10	**B**	$5.80	**C**	$8	**D**	$4
(c) Joseph bought the following goods from Mr Moyo's store; 1 packet rice, 2 packets matemba and 3 packets flour. How much did he pay for the goods							
A	$177.90	**B**	$167.90	**C**	$176,90	**D**	$178.90

(d) How much change does he get if he gave the shopkeeper 2$100 notes.							
	A	$23.10	**B**	$22.10	**C**	$21.10	**D**	$24.10
(e) What is the total cost of 1 packet matemba, 2 bottles paraffin and 2 Omo.							
	A	$315.75	**B**	$215.65	**C**	$115.75	**D**	$215.75

51. Use the price list in the above exercise

(a) Write an invoice for the following goods bought:
2 packets sugar, 1 packet omo and 2 bottles cooking oil.

(b) How much does one get from 11 $20 notes?

(c) Write an invoice for Mr Dube who bought the following goods:
3 packet sugar, 1 packet matemba, 2 packets flour.

(d) i.What is the cost of three packets Omo?

(d)ii. How much change does one get from 3$50 notes?

52. Mr Moyo's initial bank account had $208.50. On 25 June 2019 he deposited $500. On 28 June he again deposited $325.00, then on 2 July 2019 he made a withdrawal of $400. On 14 July he deposited $755 and on 17 July he made a withdrawal of $900.

(a) What was the resultant balance after depositing money on 25 June 2019.							
	A	$291.50	**B**	$500	**C**	$208.50	**D**	$708.50
(b) How much was withdrawn from the account on 2 July 2019							
	A	$200.50	**B**	$500	**C**	$400	**D**	$325
(c) How much was in the bank account on 2 July after withdrawing $400.							
	A	$633.50	**B**	$1033.50	**C**	$643.50	**D**	$1032.50
(d) How much was in the bank account on 17 July after withdrawing $900.							
	A	$1383.50	**B**	$488.50	**C**	$484.50	**D**	$1382.50
(e) How much was withdrawn from the account altogether?							
	A	$900	**B**	$1400	**C**	$1300	**D**	$1800

(e) How much was withdrawn from the account altogether?							
	A	$900	**B**	$1400	**C**	$1300	**D**	$1800

53. Answer the questions below

PACHEDU DEPOSIT SLIP

NAME OF DEPOSITOR : TULUMBELEZA MADHOCHI
ADDRESS: House No 54 CHORUTOMBO Street
MUKOBA 4 GWERU
ID No: 54-036145 A27
ACCOUNT No: 7050172039
AMOUNT DEPOSITED IN WORDS : Two-hundred-and-fifty-dollars only.
AMOUNT IN FIGURES: $250,00
SIGNATURE.....
DATE : 24/04/20

(a)	What is the name of the bank?	(b)	Who deposited the money?
(c)	On which date was the money deposited?	(d)	Write down the account number
(e)	How much was deposited?		

COUNTRY TO	Letters	parcels
ZIMBABWE	Up to 20g 50c 21g to 100g $0.80 101g to 250 $1.30 251g to 500g $1.80 Over 500g $2.00	Up to 1kg $4.00 Over 1kg to 3kg $6.30 Over 3kg to 5kg $9.50 Over 5kg to 10kg 14.00

54. Use the sample of postal rates above to answer the following questions

(a) How much do you pay for sending letter weighing 21g

A $50c B $80c C $1.30 D $1.80

(b) How much do you pay for a parcel weighing 4kg?

A $4.20 B $6.30 C $9.50 D $14.00

(c) How much do you pay for a letter weighing 43g and a parcel weighing 6kg?

A $15.00 B $14.80 C 9.80 D $7.10

(d)What is the cost to send a 300g letter and a parcel weighing 4.5kg?

A $10.30 B $11.30 C $14.30 D $11.50

(e) What is the postal rate of sending a parcel weighing 3,8kg?

A $9.50 B $6.30 C $4.00 D $14

55. Use the sample of postal rates to answer the following questions. How much do you pay for sending

(a) a letter weighing 150g?
(b) a parcel weighing 6kg?
(c) a letter weighing 650g and a parcel weighing 2kg?
(d) a letter weighing 320g and a parcel weighing 7.50kg?
(e) a letter weighing 450g and two parcels each weighing 3.5kg

56. Write the following times in 24hr notation.

(a) 10.00am								
	A	1200hrs	**B**	1000hrs	**C**	1300hrs	**D**	2200hrs
(b) 12.30pm								
	A	0030hrs	**B**	1230hrs	**C**	1430hrs	**D**	1930hrs
(c) 11.45am								
	A	1145hrs	**B**	2345hrs	**C**	1345hrs	**D**	1530hrs
(d) 12.50 am								
	A	0250hrs	**B**	2450hrs	**C**	0050hrs	**D**	1250hrs
(e) 9.30pm								
	A	0930hrs	**B**	2130hrs	**C**	1930hrs	**D**	2000hrs

EXAM PRACTICE (PROBLEMS)

57. Write the following times in 24hour notation

(a)	10.20am	**(b)**	5.30am	**(c)**	9.50am	**(d)**	8.40pm	(e)	10.20pm

58. Calculate and select the appropriate answer

(a) How much time is there from 2.30am to 10.30am?								
	A	8hrs	**B**	12H30mins	**C**	8H30mins	**D**	5hrs
(b) How much time is there from 5.30am to 10.40am?								
	A	4H10mins	**B**	5H 10mins	**C**	3H10mins	**D**	6H10mins
(c) How much time is there from 10.30am to 2.20pm?								
	A	4H50mins	**B**	3H 50mins	**C**	3H90mins	**D**	5H50mins
(d) What is the sum of 2hrs 30mins and 3hrs 20mins?								
	A	5H 50mins	**B**	4H50mins	**C**	3H 50mins	**D**	6H50mins
(e) What is the sum of 3hrs 40mins and 1hr 29mins?								
	A	4H 9mins	**B**	4H 69mins	**C**	5H 9mins	**D**	4H29mins

59. How much time is there from

(a) 10.00am to 11.40am? (b) 7.30am to 9.00am?

(c) 11.30am to 3.30pm ?

60.

(a)

	hrs		min	
	5	.	3	0
+	2	.	2	0

(b)

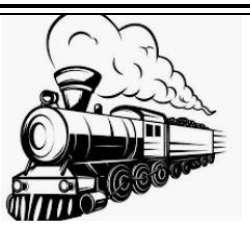
	hrs		min	
	3	.	3	0
+	4	.	4	0

61. Solve the following problems

(a) A watch which shows 7.50am is 10 minutes behind. Find the correct to time.							
A	7.40am	**B**	8.00am	**C**	9.10am	**D**	8.10am
(b) A watch which shows 1245hrs is 20 minutes ahead. Find the correct time							
A	1255hrs	**B**	1225hrs	**C**	1305hrs	**D**	1300hrs

62. Use the timetable and solve the following problems.

	Arrive	**Depart**
Zvishavane		07.30hrs
Shurugwi	08.35	09.50hrs
Gweru	10.30hrs	11.00hrs
Kwekwe	12.10hrs	12.30 hrs
Kadoma	14.20hrs	



(a) How long did the train stop in Kwekwe?							
	A	20mins	**B**	30mins	**C**	40mins	**D**	50mins
(b) How long does it take to travel from Zvishavane to Kadoma?							
	A	6hrs 30mins	**B**	6H50mins	**C**	5hrs 50mins	**D**	6hrs 40mins
(c) Calculate actual travelling time of the journey.							
	A	5hrs 45mins	**B**	4H50mins	**C**	6hrs 45mins	**D**	5hrs 20mins

63. A watch which shows 7.15am is 20mins behind. What is the correct time?

64. A journey which took, 1hr 45mins ended at 10.50am? What time was the journey started?

65. Mr Moyo started a journey at 11.30am. If he took 1hr 20mins to cover the journey find the arriving time.

66. Use the timetable above to solve how long it takes to travel from

a) Gweru to Kadoma?
b) Kwekwe to Kadoma?

67

(a) 20 – 6 + 8 =							
	A	6	**B**	22	**C**	18	**D**	19
(b) 15 – 8 + 9 =							
	A	14	**B**	16	**C**	2	**D**	12
(c) 15 – 12 + 3 =							
	A	0	**B**	6	**C**	15	**D**	23
(d) 14 +19 - 9 =							
	A	4	**B**	14	**C**	24	**D**	16
(e) 36 + 54 - 19 =							
	A	37	**B**	71	**C**	41	**D**	27

68

(a)	9+4-6=	**(b)**	15-9+8=	**(c)**	24-16+12=	**(d)**	16-20+18=	**(e)**	4-28+32=

69

(a) 12 × 3 ÷ 9 =							
	A	9	**B**	4	**C**	6	**D**	8
(b) 4 × 8 ÷ 16 =							
	A	2	**B**	32	**C**	4	**D**	10
(c) 20 ÷ 5 × 8 =							
	A	16	**B**	32	**C**	4	**D**	12
(d) 60 ÷ 12 × 8 =							
	A	40	**B**	5	**C**	4	**D**	12
(e) 24 ÷ 8 × 9 =							
	A	32	**B**	16	**C**	27	**D**	36

70

(a)	24×4÷2	**(b)**	54÷9×8	**(c)**	16×8÷4	**(d)**	11×9÷3	**(e)**	72÷12×18

71

(a) 46 – 3 × 8 =							
	A	32	**B**	344	**C**	22	**D**	324
(b) 9 – 35 ÷ 5 =							
	A	2	**B**	12	**C**	15	**D**	30
(c) (10 × 8) – (15 ÷ 3) =							
	A	21⅔	**B**	18	**C**	75	**D**	55
(d) 20 ÷ 5 - 4 =							
	A	20	**B**	4	**C**	1	**D**	0
(e) 8 + 7 × 5 =							
	A	75	**B**	43	**C**	5	**D**	14

72

(a)	18-5 ×2	**(b)**	40 + 10 ×5	**(c)**	40 ÷5-8	**(d)**	15÷3+19	**(e)**	5×3+8

73. The table below shows the rainfall recorded during seven days of the week.

.
72.

DAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Amount of Rainfall	28mm	54mm	0mm	19mm	40mm	72mm	39mm

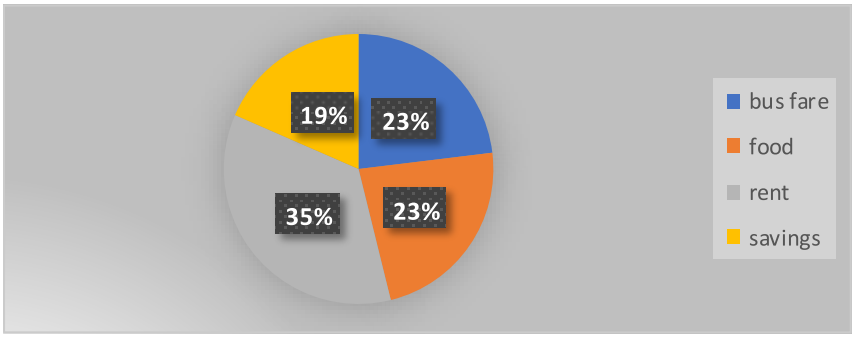
(a) Which day received the highest amount of rainfall?							
	A	Monday	**B**	Wednesday	**C**	Thursday	**D**	Friday
(b) Which day did not receive any rainfall?							
	A	Sunday	**B**	Monday	**C**	Tuesday	**D**	Wednesday
(c) What is the amount of rainfall received on Thursday?							
	A	19mm	**B**	40mm	**C**	72mm	**D**	39mm
(d) What is the total amount of rainfall for the week?							
	A	250mm	**B**	257mm	**C**	252mm	**D**	254mm
(e) What is the average rainfall for the six days?							
	A	42mm	**B**	43mm	**C**	44mm	**D**	52mm

74. The table below shows daily sales of broilers for the week.

DAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Broilers sold	34	16	32	23	19	15	27

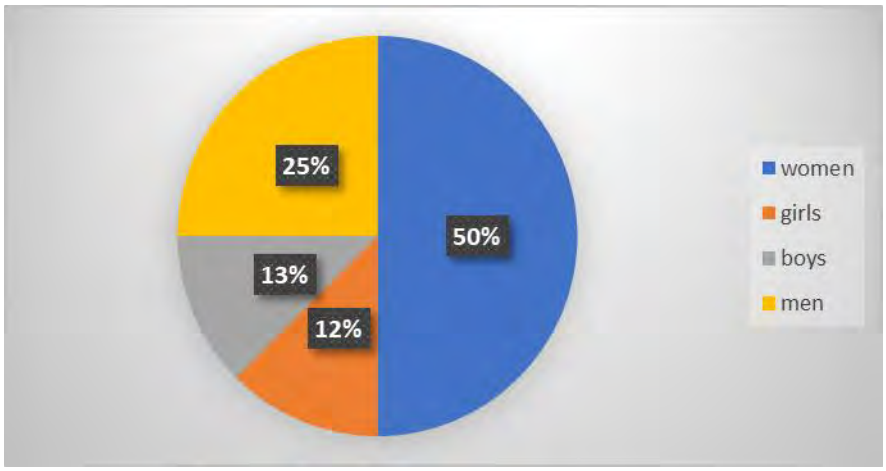
(a) How many broilers were sold on i) Tuesday?
ii) Sunday?
(b) Which day had i) the most sales? ii) the least sales?
(c) Calculate total sales for the week.

75. The pie chart below shows how Mr Dube who earns $1 600 a month spends his money.



(a) What fraction does he spent on rent?							
	A	¼	**B**	⅜	**C**	½	**D**	⅔
(b) What takes largest fraction of his expenditure?							
	A	food	**B**	Bus fare	**C**	Rent	**D**	savings
How much money is spent on food?							
	A	400	**B**	800	**C**	200	**D**	1200
(d) How much money is spent on Rent?							
	A	400	**B**	500	**C**	600	**D**	800
(e) What percentage is spent on savings?							
	A	20%	**B**	10%	**C**	12.5%	**D**	15%

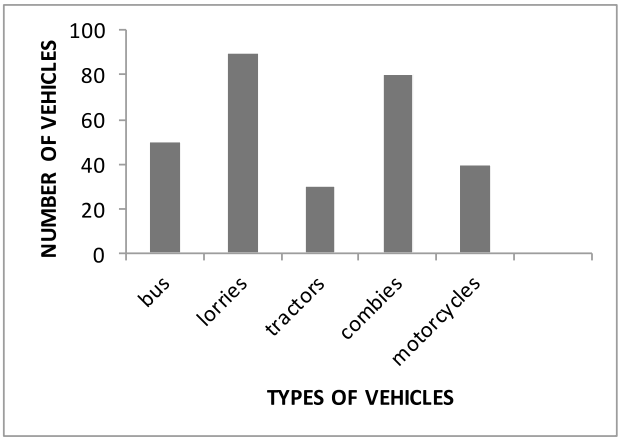
76. The pie chart below shows passengers in a bus if. If there are 72 passengers in the bus



(a) What fraction are i) women ii) men
(b) How many passengers are i) women ii) boys
(c) Write the number of girls as percentage.

77. The bar graph below shows types of traffic which passed through the Masvingo tollgate on Monday.

Please note the vertical axis represents the number of vehicles



(a) Which type of vehicles had the highest number which passed through the tollgate.							
	A	Buses	**B**	Lorries	**C**	Tractors	**D**	Commuter ominibuses
(b) How many commuter omnibus passed through the tollgate?							
	A	60	**B**	70	**C**	80	**D**	90
(c) How many more commuter omnibuses than tractors passed through the tollgate?							
	A	30	**B**	40	**C**	20	**D**	50
(d) What is the total number of vehicles which passed the tollgate?							
	A	280	**B**	290	**C**	300	**D**	270
Calculate the average number of vehicles which passed the tollgate							
	A	58	**B**	60	**C**	40	**D**	55

78. The straight line graph below shows interest charged for money borrowed from the bank

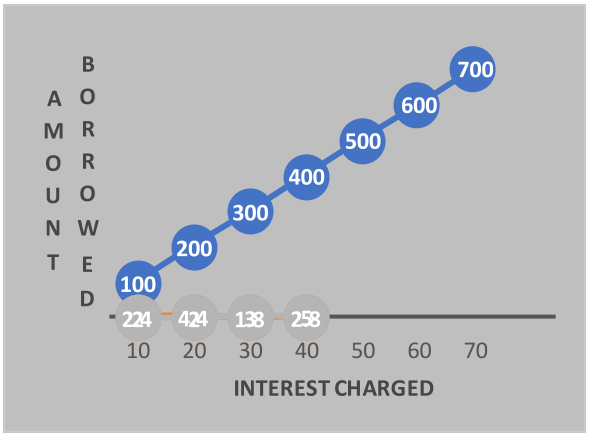
(a) How much interest are you charged if you borrow $300?

(b) How much do you borrow if you are charged 70?

(c) What interest on 500?

(d) How much more interest are you charged for borrowing 700 than 200?

(e) If you borrow 100, how much interest are you charged?



UNIT 1 ANSWERS

UNIT 1

Exercise1

1. a) Two thousand and five

   b) Five hundred and sixty-seven thousand one hundred and twenty- eight

2. a) 3402 b)17 663

Exercises 2

(a)	234 = unit	**(b)**	1740 = H	**(c)**	10 472 =Tth	**(d)**	13 632 856 =TM

Exercises 3

1. a) 103 = 10 x 10 x 10 = 1 000
   b) 104= 10 x 10 x 10 x 10 = 10 000
   c) 56= 5 x 5 x 5 x 5 x 5 x 5 = 15 625
   d) 1000 000 = 106

Exercises 4

1. 350, 455, 626, 780, 786
2. 2099, 1992, 1109, 563, 425

Exercises 6

Exercises 7

Exercises 8

Exercises 9

1. a) 70 b) 70 c) 90
2. a) 700 b) 1 200 c) 450 400 d) 300
3. a) 134,7

Exercise 10

Arabic Form

(a)100 (b) 5(c)30 (d) 53

Roman numerals

(a)XXXII (b)CCC (c) XL

Exercises 11

a) $\frac{3}{10}$ b) $\frac{3}{5}$ c) $\frac{7}{10}$ d) $\frac{1}{2}$

Exercises 12

1. a) 40 cups b) 121½m of cloth c) 20% d) 33%
2. a) B b) C d) B e) D

Exercises 12

(a)60% (b)315(c) 10%

Exercise 13

1. a) 1020 b) 1 440 c) 1 101 d) 2 211
2. a) 400 b) 331 c) 2 739 d) 339

Exercises 14

1. a) 1020 b)1 440c)1 101 d)2 211
2. a)329 b) 311 c) 39 739 d) 129 436

Exercises 15

a)1/10 b)26/10 000 c)7/100

Exercises 16

(1)2,002 (2) 3,44 (3)10,345 (4) 3,212

Exercises 17

1. 1.)3,36 (2)9,655 (3)0,09 (4) 2,75

2.

Exercises 18 *– Adding Decimals*

x

Exercises 19 *–Subtracting Decimals*

1)3,4-0,04= 2)10-0,345 3)0,1-0,01= 4) 6-3,25

Exercises 20*– Change decimal fraction to decimal number*

1) 0,5 2) 0,06 3) 0,85 4) 0,25 5) 0,0567 6) 0,44

Exercises 21 *– Comparing decimal fractions*

1. a) < b) > c) < d) > e) <

Exercises 22

1. a) 0 b) 0 c) 6 d) 12
2. a) 15 b) 24 c) 24
3. a) 15 b) 24 c) 24

Exercises 23—

a) b) c) d) e) f) g) h)

Exercises 24

a)3685,1 b)224 322,9 c)21115,510

Exercise 25

a)987,6 b) 397,44 c)3064,715 d) 7,32 e)24,388 f)0,122
g)49,068 h)8,308 i)24,566 j)73,96

Exercises 26*– Divide decimal numbers up to 3 places*

a)50 b)0,1 c) 70,375

Exercise 27

1. a) $40 b) $110 c) $75
2. a) 25% b) 20%
3. a) 25% b) 50%

4. Business people want to avoid selling their goods at a loss. When they do they have lost more than money but also the time spent having bought, stored and managed the goods before they are sold.

An example of selling at a loss is when, let's say, you sell tomatoes and they are starting to go bad, so you want to sell them at below cost to recover at least some of your expenses in growing them.

Other sellers may have fresh new tomatoes that they are selling at a profit. You lower your price to interest customers that need tomatoes that they will consume right away.

Exercises 28

1. a) $120 b) $480 c) $80/month
2. a) $30 b) $270 c) $45/month
3. a) b)

Exercise 29

Exercises 30

x

Exercise 31

x

Exercises 32

1. XXXX

Exam Practice

UNIT 1.10 Exercise Answers – TIME

Exercises 1.10.1.4

1. a) 05:00hrs b) 14:30hrs c) 10:50hrs d) 15.10hrs
2. a) 14.30hrs b) 12:00hr c) 11:45hrs d) 16.30hrs

Exercises 1.10.2.4

1) 5 hr 55min 2) 1 hr 40 minutes 3) 7hrs 40min 4) 9hrs 10min 5) 5hrs 30min

Exercises 1.10.3.4

1. 30 minutes 2. 3hours and 20 minutes 3. 9 :15am

UNIT 1.11 Exercise Answers – COMBINED OPERATIONS

Exercises 1.11.1.4

1. a) 20 b) 90 c) 20 d) 61
2. a) 47 b) 11 c) 2 d) 2
3. a) b) c) d) e)

UNIT 1.12 Exercise Answers *– DATA HANDLING*

Exercises 1.12.1.4 *– Interpreting Tables*

x

Exercises 1.12.2.4 *– Interpreting Graphs*

1. a) b)
2.
3.

Exercises 1.12.3.4 *– Read & Extract information from Pie Charts*

1.

UNIT 1 EXAM PRACTISE ANSWERS

UNIT 1.1 Exercise Answers – WHOLE NUMBERS

1. a) One hundred b) One thousand c) ten thousand d) one hundred thousand e) one million

2. a) 100 b) 1 600 c) 12 700 d) 434 900 e) 3 557 100

UNIT 1.2 Exercise Answers – NUMERATION SYSTEMS

3. a) C b) C c) D d) L e) A

4. a) A b) B c) CC d) B e) M

5. a) b) c)

UNIT 1.3 Exercise Answers – PERCENTAGES

7. a) D b) C c) B d) D e) A f) B g) A h) B i) C j) A

8. a) 48 b) 180 c) 250

9. a) 42g b) 11g c) 12.5%

10. a) 75% b) 10% c) 37.5%

EXAM PRACTICE Answer Section 1.3

11. 75% 12. 25% 13. 15% 14. 75%

EXAM PRACTICE Answer Section 1.3.2

15. 6.67% 16. 20% 17. 20%

UNIT 1.4 Exercise Answers – ADDITION SUBTRACTION WHOLE NUMBERS

x

UNIT 1.5 Exercise Answers – ADDITION SUBTRACTION OF DECIMALS

18. a) C b) C c) B d) A e) D

19. a) 40+3+ 8/10+ 3/100+ 0/1 000+1/10 000 b) 0+0/10+9/100+2/1 000+4/10 000
c) 0+6/10+7/100+1/1 000+5/10 000 d) 100+30+4+4+5/10+3/100+7/1 000
e) 4+9/10+8/100+2/1 000+1/10 000

Exam practice Section 1.5.3 Subtracting Decimals

20. a) 1,0637 b) 0,903 c) 0.87 d) 0.87
21. The ropes are 4,2m long end to end.
22. The rulers are 94,4 cm together.
23. 896,6 24. 5396,8 25. 99,16 26. 2,2 27. 7,816
28. She needs to cut off 2,5m from the tree
29. Jeffrey is 0.0911m taller tan Craig or 9,11 cm

UNIT 1.6 Exercise Answers – MULTIPLICATION AND DIVISION OF DECIMALS

30. (a) 128 (b) 1 065 (c) 2 884 (d) 7 269
31. (a) 3 060 (b) 308 (c) 26 588 (d) 4 485 (e) 15 800
32. a) $354 b) 924 students go to that school c) There are 375 trees
33. a) 63,45 b) 1846,5 c) 799,59 d) 53 e) 952,722 f) 213,4 g) 138,6 h) 730,08 i) 489,9 j) 212,52

UNIT 1.7 Exercise Answers – MULTIPLICATION AND DIVISION OF DECIMALS

Exam Answers 1.7 multiplication of decimal x decimal

34. a) 10 987,6 b) 7,44 c) 3 064,715 d) 7,44 e) 24,388 f) 0,122 g) 49,068
h) 8,308 i) 24,566 j) 3,96

EXAM Answers -- Section 1.7 Multiplication/Division of Decimals

35. a) 60,3 b) 6 c) 3,11 d) 7,5 e) 1,7 f) 5,05

EXAMPLE Answers -- Section 1.8 – Financial Transactions

36. a) B b) C c) D d) C e) A

37. a) $10 or 50% b) 25% c) $8 or 20% d) $20 or 40% e) $20

UNIT 1.8 Exercise Answers – FINANCIAL TRANSACTIONS

EXAMPLE Answers Section 1.8.2

38. a) C b) B c) B d) D e) A

39. a) $96 b) $384 c) $32

40. a) $36 b) $27

41. 42. 43. 44. 45.

46. a) b) 47. a) b) 48. a) b) 49.

50. a) C b) B c) A d) B e) D

51. a) See picture

b) $220 the change is $9.11

c) The total will be $259.65 make an invoice like the one pictured

d) 3 packets Omo cost $145.5

e) The change is $4.50

My Store

6 June 2020

To: My Best Customer

Items	Qu	Price	Item Total
packets sugar	2	$28.55	$ 57.1
packet omo	1	$48.5	$ 48.5
bottles cooking oil	2	$52.3	$104.6
TOTAL			$210.20

Thank you for Shopping at My Store!

UNIT 1.9 Exercise Answers – MONEY

EXAM Answers Section 1.9.2

52. a) D b) C c) A d) B e) C

53. a) The name of the bank is FBC b) Fanuel Madhochi deposited the money

c) The money was deposited on 24 April 2020

d) The account number is 7050172039 e) He deposited $250.00

Exam Answers for Section 1.9.3

54. a) B b) C c) B d) B e) A

55. a) $1.30 b) $14.00 c) $8.30 d) $15.8 e) $11.30

UNIT 1.10 Exercise Answers – TIME

56. a) b) c) d) e
57. a) b) c) d) e)
58. a) b) c) d) e)
59. a) b) c)
60. a) b)

EXAM Answers 1.10 .3

61. a) b)
62. a) b) c) 63. 64 65. 66.
67. a) b) c) d) e) 68. a) b) c) d) e)
69. a) b) c) d) e) 70. a) b) c) d) e)
71. a) b) c) d) e) 72. a) b) c) d) e)

UNIT 1.11 Exercise Answers – COMBINED OPERATIONS

UNIT 1.12 Exercise Answers – DATA HANDLING

73. a) b) c) d) e)
74. a) i) ii) b) i) ii) c)

EXAM PRACTICE Answers 1.12.3

75. a) b) c) d) e)
76. a) i) ii) b) i) ii) c)
77. a) b) c) d) e)
78. a) b) c) d) e)

UNIT 2. SCOOPS & SHAPES

Unit Overview

2.1	NUMBER Proper Fractions (denominators 2 to 10 and multiples of 5 up to 100)	2.1.1 identify, read, and write proper fractions 2.1.1 interpret diagrams representing proper fractions 2.13 compare proper fractions 2.1.4 arrange proper fractions in order of size 2.1.5 Convert proper fractions to decimals 2.1.6 simplify proper fractions to their lowest terms
2.2	NUMBER Mixed number denominators 2 to 10 and multiples of 5 up to 100)	2.2.1 identify, read and write mixed numbers 2.2.2 represent mixed numbers on diagrams and vice- versa 2.2.1 identify whole number and fraction parts of a mixed number 2.2.1 write mixed numbers as improper fractions 2.2.3 write mixed numbers as decimals
2.3	NUMBER Addition and subtraction of proper fractions	2.3.1 add and subtract proper fractions
2.4	NUMBER Addition and Subtraction of Mixed Numbers	2.4.1 Add and subtract mixed numbers
2.5	OPERATIONS Multiplication and division of proper fractions and mixed numbers	2.5.1 multiply proper fractions and mixed numbers 2.5.2 divide proper fractions and mixed numbers
2.6	MEASURES Mass (gram to ton)	2.6.1 convert one unit of mass to another 2.6.2 measure mass of quantities to the nearest 500g 2.6.3 solve problems involving gross, net and tare mass
2.7	MEASURES Volume and Capacity (up to m^3)	2.7.1 State and use units of capacity and volume 2.7.2 measure volume and capacity 2.72 compute volume up to a cubic metre (m^3)
2.8	MEASURES Direction Angles, and lines	2.8.1 show direction of points from a reference point 2.8.2 identify and name types of angles 2.8.3 calculate missing angles 2.8.5 Convert fractions by revolutions
2.9	MEASURES Shapes	2.9.1 identify 2 and 3 dimensional shapes 2.9.2 list properties of 2 and 3dimensional shapes 2.9.3 construct models of 3 dimensional shapes
2.10	RELATIONSHIPS Data Handling (tables, bar graphs, column graphs , pie charts, ready reckoners, jagged line graphs)	2.10.1 Interpret data from tables

2.1 PROPER FRACTIONS

By the end of this Sub- Unit, you will be able to:	
identify, read, and write proper fractions	Mini Lesson 2.1.1
interpret diagrams representing proper fractions	Mini Lesson 2.1.1
compare proper fractions	Mini Lesson 2.2.1
arrange proper fractions in order of size	Mini Lesson 2.1.4
convert proper fractions to decimals	Mini Lesson 2.1.5
simplify proper fractions to their lowest terms	Mini Lesson 2.1.6

MY TOOLBOX FOR LEARNING

2.1.1.1 MINI-LESSON – IDENTIFY, READ, WRITE AND INTERPRET PROPER FRACTIONS

Fractions are numbers less than one. They represent parts of a whole. The denominator is the bottom number and represents the total number of parts, divisions or cuts made to the whole, and the top number is called the numerator, shows how many parts we are talking about.

e.g

The fraction shown below is. It shows that the whole is made up of 4 parts but we are talking only about 3 parts of 4 that are not shaded in this case. It is read as three quarters.

Examples:

A) 1 /5

B) 5/6

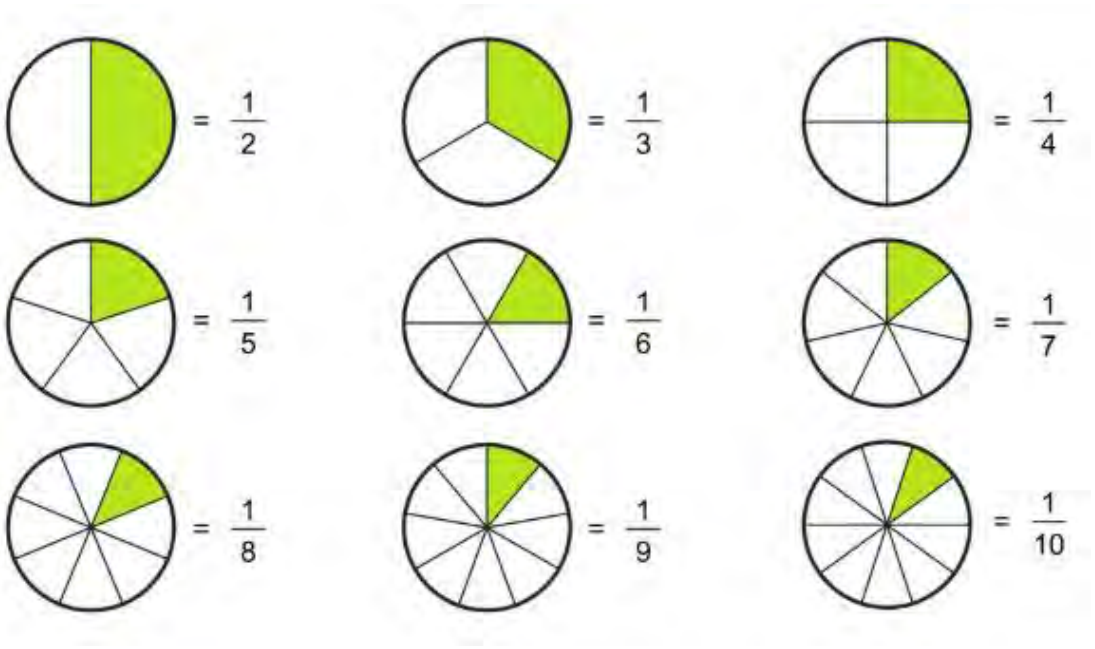
B) 2/3

Solution

Those fractions are read as

A)one fifth B)Five sixths C) Two thirds

REFERENCE SHEETS & REMINDERS



The top number is the numerator.
The top number shows the number of parts that have been made.
The number at the bottom is the denominator

IT'S YOUR TURN!

ACTIVITY

Take an A4 size paper. Note that the paper is a whole. Fold the paper into half and reopen it. How many parts has that paper been divided into? Each part is called a half. Write one half on the left ½ half. Draw a line down the fold using a ruler. Refold on the line and fold it into half once more. Open the fold, how many parts have you folded now? There are 4. Each part is called a quarter. Write a ¼ at the top righthand section. WHAT DID YOU NOTICE? The number at the bottom gets bigger because it shows an increasing number of parts in the whole, but the number on the top is always one because we are only considering one part of each fraction. What other fractions would you form if you continue to fold?

Exercise

Write these fractions in words

a) $\frac{1}{3}$ b) $\frac{4}{5}$ c) $\frac{3}{7}$ d) $\frac{9}{12}$

Draw a diagram that shows

a) $\frac{3}{4}$ b) $\frac{3}{10}$ c) $\frac{1}{2}$ d) $\frac{7}{8}$ e) $\frac{5}{6}$

MY TOOLBOX FOR LEARNING

2.1.3.1 MINI-LESSON – COMPARE PROPER FRACTIONS

Look at the following example and compare and solve using comparison signs (<, > or =).

Example 1: $\frac{1}{2} \square \frac{1}{3}$

$\frac{1}{2} > \frac{1}{3}$

Example 2:

Changing the fractions to percentages and compare percentages

For example,

$\frac{2}{5} \square \frac{3}{4}$

To do this multiply by 100 and then divide the remaining fraction

i) $\frac{2}{5} \times 100 = \frac{2}{5} \times \frac{100}{1} = \frac{200}{5} = 40\%$

ii) $\frac{3}{4} \times 100 = \frac{3}{4} \times \frac{100}{1} = \times \frac{300}{4} = 75\%$

$= \frac{2}{5} \square \frac{3}{4} = 40\% \square 75\% = \frac{2}{5} < \frac{3}{4}$

IT'S YOUR TURN!

EXERCISES

Compare the following

1) $1\frac{1}{3} \square 1\frac{1}{3}$ 2) $\frac{3}{4} \square \frac{4}{5}$ 3) $2\frac{3}{20} \square 2\frac{3}{10}$ 4) $\frac{3}{12} \square \frac{2}{4}$

MY TOOLBOX FOR LEARNING

2.1.4.1 MINI-LESSON – ARRANGE PROPER FRACTIONS IN ORDER OF SIZE

To arrange is to put into desired order. In this lesson you will learn to arrange fractions in order of size. This can be from the biggest to the smallest and vice versa.

You can use the skill of changing fractions to percentages, changing to lowest term or looking at the numerator if the denominators are the same.

IT'S YOUR TURN!

EXERCISES

1. Arrange the fractions below in Descending order
   2/3, 1/3, 3/4, /5/6
2. Arrange the fractions above in Ascending order
3. a) 5/6, ¾ ,2/3, 1/3
   b) 1/3, 2/3, 3/4, 5/6
4. Arrange the fractions from the smallest to the biggest
   7/10 4/5, 2,5 12/20
5. Arrange the above from the largest to the least

2.2 MIXED NUMBER DENOMINATORS 2- 10 & MULTIPLES 5 - 100

By the end of this Sub- Unit, you will be able to:	
identify, read and write mixed numbers	Mini Lesson 2.2.1
Change Mixed Numbers to Improper Fractions	
Change Improper Fractions to Mixed Numbers	
Comparing Proper Fractions	
represent mixed numbers on diagrams and vice- versa	Mini Lesson 2.2.2
identify whole number and fraction parts of a mixed number	Mini Lesson 2.2.1
write mixed numbers as improper fractions	Mini Lesson 2.2.1
write mixed numbers as decimals	Mini Lesson 2.2.3

MY TOOLBOX FOR LEARNING

2.2.1.1 MINI-LESSON– IDENTIFY READ AND WRITE MIXED NUMBERS AND CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS AND VICE VERSA

A mixed number is made from a whole number and a proper fraction

$4\frac{1}{4}$ $2\frac{5}{7}$

They are easier to work with when you turn them into **improper fractions.** **Improper Fractions** have a **numerator** that is larger than the **denominator**

$\frac{17}{4}$ $\frac{19}{7}$

MY TOOLBOX FOR LEARNING

2.1.5.1 MINI-LESSON – CONVERT PROPER FRACTIONS TO DECIMALS

In this lesson we are going to be taught how to convert proper fractions to decimals.

Take a fraction like $\frac{40}{51}$ $0{,}8$

The answer is 0,8

REFERENCE SHEETS & REMINDERS

Fractions have a top and a bottom number
The top number is called the numerator
The bottom number on a fraction is the denominator

IT'S YOUR TURN!

2.1.5.4 TASK, ACTIVITIES or EXERCISES

1) $\frac{1}{2}$ 2) $\frac{6}{10}$ 3) $\frac{3}{4}$ 4) $\frac{4}{5}$ 5) $\frac{7}{10}$

MY TOOLBOX FOR LEARNING

A. HOW TO CHANGE MIXED NUMBERS TO IMPROPER FRACTIONS?

$4\frac{2}{5}$

A. Multiply the Whole Number by the denominator
B. Add the value of the Numerator
C. Place it over the same Denominator

A. 4 x 5 = 20
B. 20 + 2 = 22
C. $\frac{22}{5}$

B. HOW DO YOU CHANGE IMPROPER FRACTIONS TO MIXED NUMBERS?

$\frac{47}{9}$

A. Divide the numerator by the denominator
Ask yourself 'how many times does 9 go into 47?'
B. Note the answer is 5 with a remainder of 2.
C. Place the 5 before a fraction of the same denominator and place the remainder into the spot of numerator

$5\frac{2}{9}$

Mixed numbers are read the following way:
ANSWER: >

Example:
A) Change the following to an improper fraction:
2 x 3 = 6
6 + 1 = 7
B) Change the following to an improper fraction:
4x5=20
20 +1=21

REMINDERS

- Fractions are parts of whole.
- Some fractions are equal (= =)
- Improper fractions can be changed to mixed number

IT'S YOUR TURN!

EXERCISES

1. Write the following mixed numbers in words

a) $4\frac{5}{6}$ b) $2\frac{3}{4}$ c) $8\frac{3}{4}$ d) $3\frac{1}{3}$

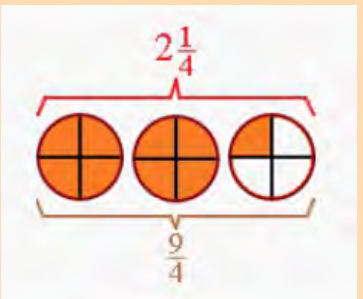
2. Change the following into Improper Fractions

a) b) 5 c) d) 3

MY TOOLBOX FOR LEARNING

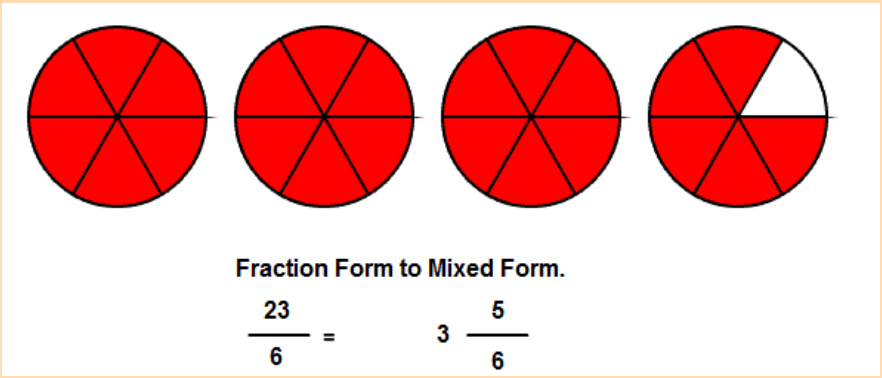
2.2.2.1 MINI-LESSON -- REPRESENT MIXED NUMBERS ON DIAGRAMS AND VICE- VERSA

Here we are going to learn to use diagrams to help us give a picture that explains that exactly a fraction means. In this case we are dealing with mixed numbers. We will represent them as diagrams and have numerical fractions that represent given diagrams. Just as the example given below.



IT'S YOUR TURN!

EXAMPLE



4. Draw diagrams showing the following fractions
a) b) 1 c) 5

MY TOOLBOX FOR LEARNING

2.2.3.1 MINI-LESSON -- WRITE MIXED NUMBERS AS DECIMALS

Mixed numbers are fractions greater than 1 that are made of whole numbers and proper fraction for example . Decimals are numbers with a decimal comma for example 0,24 or 7,3.

Examples:

1) For example, to convert , we first can recognize 2 as a whole number which will be followed by a comma to indicate where the decimal begins to express the 4/5. We then need to change our fraction, in this case 4/5, to a decimal by dividing it numerator by the denominator.

MY TOOLBOX FOR LEARNING

Examples:

Step 1: 0,84/51 =0,8 4÷5=0
Step2: 0, so we add 0 to 4 to make it 40
Step 3: 40 ÷ 5 = 8
The answer is therefore 0,8
We now have to add the fraction in decimal form to its original whole 2+0,8 we align the numbers well by adding 0 after the whole number
2,0 +0,8 = 2,8 the answer 2,8

	0.	8	0	0
5	4.	0	0	0
−	0			
	4	0		
−	4	0		
		0	0	
	−		0	
			0	0
		−		0
				0

2) Change 3 to a decimal
Change the mixed number to an improper fraction

Step 1 : Write down the whole number 3, to not forget it
Step 2 : Change the fraction to a decimal by dividing the numerator by the denominator.
Step 3 : 0,753/41 3÷4=0, add zero to 3 to make it 30 we get 7 remainder 2 which we add 0 to make it 20÷4=5 the answer is 0,75
Step 3:3,0 + 0,75 = 3,75 the answer is 3,75

	0.	7	5	0
4	3.	0	0	0
−	0			
	3	0		
−	2	8		
		2	0	
	−	2	0	
			0	0
		−		0
				0

IT'S YOUR TURN!

EXERCISES

1. Convert the following Mixed Numbers to decimals

(a) $6\frac{3}{10}$ (b) $4\frac{2}{4}$ (c) $7\frac{1}{2}$

(d) $5\frac{3}{4}$ (e) $2\frac{1}{4}$

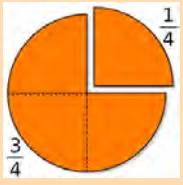
2.3 ADDITION AND SUBTRACTION OF PROPER FRACTIONS

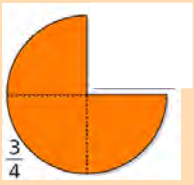
By the end of this Sub- Unit, you will be able to:	
Add and subtract proper fractions	Mini Lesson 2.3.1
Recall proper fractions	
Reducing Fractions (finding the highest common factor)	
Adding and Subtracting Fractions with Different Denominators	Mini Lesson 2.3.2

MY TOOLBOX FOR LEARNING

2.3.1.1 MINI - LESSON -- ADDITION AND SUBTRACTION OF PROPER FRACTIONS WITH SAME DENOMINATORS

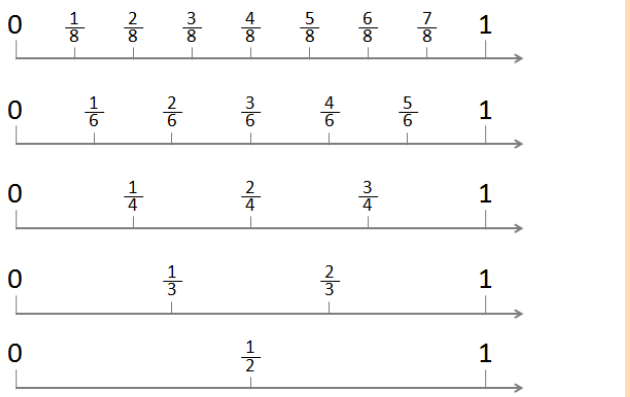
RECALL that Proper Fractions have a numerator that is smaller than the denominator and the value of a proper fraction is always less than 1.





MY TOOLBOX FOR LEARNING

The example below shows fractions marked on number lines that span from 0 to 1.



Adapted from Figure 2https://www.helpingwithmath.com/by_subject/fractions/fractions_numberline_3nf2.htm

A. HOW TO ADD PROPER FRACTIONS:

They must have the same denominator and then you may add the numerators.

For example $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

Another example $\frac{1}{4} + \frac{3}{4} = \frac{4}{4} = \frac{1}{1} = 1$

Notice in the second example, the fraction is reduced to its smallest form.

Find the highest common factor of both the numerator and the denominator:

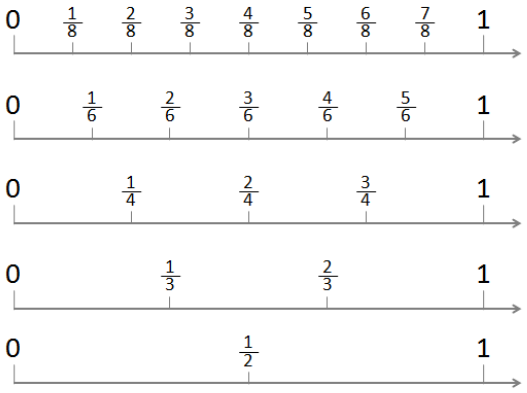
For example, $\frac{2}{10} + \frac{4}{10} = \frac{6}{10} = \frac{3}{5}$

Notice that both the 6 and the 10 can be divided by the same number to make each smaller

$\frac{1}{1} = 1$ $\frac{77}{77} = 1$ $\frac{57}{57} = 1$ $\frac{1000}{1000} = 1$

REFERENCE SHEETS & REMINDERS

The example below shows fractions marked on number lines that span from 0 to 1.



REMEMBER: when the numerator and the denominator is the same, it always equals 1.

IT'S YOUR TURN!

EXERCISES

1) $\frac{1}{5}+\frac{2}{5}=$ 2) $\frac{7}{15}-\frac{3}{15}=$ 3) $\frac{5}{12}-\frac{4}{12}$ 4) $\frac{8}{20}+\frac{5}{20}$

MY TOOLBOX FOR LEARNING

2.3.2.1 MINI-LESSON – ADDING AND SUBTRACTING FRACTIONS WITH DIFFERENT DENOMINATORS

a) $\frac{2}{15}+\frac{3}{5}=$

Look for the lowest common multiple of both fractions
The Lowest Common multiple of 15 and 5 will become the denominator for both fractions

$$\frac{2}{15} + \frac{9}{15} = \frac{11}{15}$$

The answer is $\frac{11}{15}$

a) $\frac{21}{49} + \frac{4}{7} = ?$ Find a common denominator: what divisor will divide both?
What are the factors of 49? What are the factors of 7?
7 has less: 1, 7 – do any of either of divide into 49?
49 7 =7 can you also divide the numerator (21) by 7? Yes. 21 7= 3
b) $\frac{3}{7} + \frac{4}{7} = \frac{7}{7}$ 1 Don't forget to reduce. In this case, $\frac{7}{7}$ becomes 1.

2.3.2.2 EXAMPLES

To subtract fractions with different denominators we need to find the lowest common denominator e.g $\frac{6}{7} - \frac{2}{5} =$
How to find the lowest common multiple

$$\frac{6}{7} - \frac{2}{5} = \left(\frac{6}{7} \times \frac{5}{5}\right) - \left(\frac{2}{5} \times \frac{7}{7}\right) = \frac{30}{35} - \frac{14}{35} = \frac{16}{35}$$

IT'S YOUR TURN!

EXERCISES

a) $\frac{4}{9} - \frac{5}{12} =$ b) $\frac{7}{10} - \frac{3}{20} =$ c) $\frac{9}{11} + \frac{5}{22} =$ d) $\frac{6}{15} + \frac{3}{25} =$

2.4 ADDITION AND SUBTRACTION OF MIXED NUMBERS

By the end of this Sub- Unit, you will be able to:	
Add and subtract mixed numbers	Mini Lesson 2.4.1

MY TOOLBOX FOR LEARNING

2.4.1.1 MINI-LESSON -- ADDING AND SUBTRACTING MIXED NUMBERS

EXAMPLES

$$1\frac{1}{5} + 3\frac{1}{3} + 1\frac{1}{2} =$$

Change the mixed numbers to improper fractions $= \frac{6}{5} + \frac{10}{3} + \frac{3}{2}$

$$= \frac{36}{30} + \frac{100}{30} + \frac{45}{30} = \frac{181}{30}$$

Reduce (divide 181 by 30 and put the remainder back on the denominator) if you can and change to a mixed number $= 6\frac{1}{30}$

The same process applies to subtracting Mixed Numbers

Simplify $2\frac{2}{5} - 1\frac{3}{4} = \frac{12}{5} - \frac{7}{4}$

$$= \frac{12*4}{5*4} - \frac{7*5}{4*5}$$

$$= \frac{48}{20} - \frac{35}{20} = \frac{13}{20}$$

3.4.2.3 REFERENCE SHEETS & REMINDERS

- Find the common denominator first if the denominators are different
- Remember to change the mixed number to an improper fraction first. Never leave the answer as an improper fraction.
- Always remember to give an answer in its simplest form (lowest term).

2.5 MULTIPLICATION AND DIVISION OF PROPER FRACTION AND MIXED NUMBERS

By the end of this Sub - Unit, you will be able to:	
multiply proper fractions and mixed numbers	*Mini Lesson 2.5.1*
divide proper fractions and mixed numbers	*Mini lesson 2.5.2*

MY TOOLBOX FOR LEARNING

2.5.1.1 MINI-LESSON - MULTIPLY PROPER FRACTIONS BY PROPER FRACTIONS AND MIXED NUMBERS

When multiplying mixed numbers, you must convert the mixed number into an improper fraction. To multiply proper fractions by proper fractions, you can simply multiply numerators and then denominators by denominators.
Observe the following problems.

EXAMPLES

IT'S YOUR TURN!

EXERCISE

1. Now try the following

Simplify

MY TOOLBOX FOR LEARNING

2.5.2.1 MINI-LESSON --DIVIDE FRACTIONS EXAMPLES

EXAMPLES

Observe the following examples

IT'S YOUR TURN!

EXEXCISE

1 Find the quotient

(a)	½ ÷ ⅓	**(b)**	¾ ÷ ½	**(c)**	½ ÷ ⅔	**(d)**	3/8 ÷ 1/2

2. Solve and simplify

(a)	4/2 ÷ 1/2	**(b)**	÷	**(c)**	÷	**(d)**	⅔ ÷ ¼

MY TOOLBOX FOR LEARNING

2.5.3.1 MINI-LESSON -- DIVIDE MIXED NUMBERS

Change mixed number to improper fraction
Change the operation sign to a multiplication and invert the divisor into its reciprocal form for the multiplication

EXAMPLES

IT'S YOUR TURN!

EXERCISE

5 Find the quotient

(a)	$2\ \frac{1}{2} \div 1\frac{1}{3} =$	**(b)**	$4\frac{1}{2} \div 1\frac{1}{2}$	**(c)**	2? ÷ 1 ½	**(d)**	4 ½ ÷ 1¾

6. Now own your own do the following

(a)	1 ½ ÷2	**(b)**	4 ½ ÷1	**(c)**	2¼÷ 1 ½	**(d)**	1 ÷ 2 ½

2.6 MASS (GRAM TO TONNES)

By the end of this Sub - Unit, you will be able to:	
convert one unit of mass to another	*Mini Lesson 2.6.1*
solve problems involving gross, net and tare mass	*Mini Lesson 2.6.3*

MY TOOLBOX FOR LEARNING

2.6.1.1 MINI-LESSON -- CONVERT GRAMS TO KILOGRAMS AND VICE VERSA AND KILOGRAMS TO TONNES AND VICE VERSA

Mass is a measure of weight and provides a unit to communicate what is heavy or light. Mass can be measured using a scale.The units used to express mass depend on how heavy the object is. The units used are grams (g), kilograms(kg) and tonnes (t).

Grams	Kilograms (kg)	Tonnes
1 gram	1 kg = 1000 grams	1 t = 1000 kg 1 t =1,000,000 g

The units can be converted from one unit to another, grams to kilograms and kilograms tonnes.
To convert one type of unit to another you need to multiply or divide.
To convert **grams to kilograms**, divide your quantity of grams by 1000 .

$$\frac{5\ \cancel{000}\text{grams}}{1\ \cancel{000}\ \text{grams}} = 5 \text{ kilograms}$$

To convert **kilograms to grams**, multiply your quantity of grams by 1000 .
90 kilograms x1 000g = 90 000 grams

EXAMPLES

a) 4500g to kg. Place the comma after moving three times to the left. It will fall between 4 and 5 as in, 4,500kg or simply drop the zeros and it becomes 4,5kg

b) 750g to kg = 0,750 kg =0,75 kg we have moved three times to the left and placed the comma between the 0 and 7.

2.6.1.3 REFERENCE SHEETS & REMINDERS

Kilograms 1kg	1000g
Tonnes 1t	1000kg

Remember to move the comma LEFT if converting from a smaller unit to the larger one. Move the comma RIGHT if converting to a larger unit.

IT'S YOUR TURN!

ACTIVITY

Let's say you have a packet of snacks, what would you choose to use to measure it with? What would you use to measure a bucket full of maize?
For a packet of snacks yes you can use grams. For the bucket of maize, it would be wise to use the kilograms.
1. What would you choose to use to measure the following and estimate the mass of the things.
a) A stone b) a goat c) a car d) a lorry loaded with sacks of wheat

EXERCISE

2. Change the following :

a) 1,250kg to g
b) 2 455kg to tones
c) 83,642kg to g
d) 29kg to tonnes
e) 789kg to g

MY TOOLBOX FOR LEARNING

2.6.3.1 MINI-LESSON - GROSS, NET AND TARE MASS

TARE=Gross mass –Net mass
Net mass=Gross mass-Tare mass
Gross mass=Net mass+tare mass

Many types of Goods are packed and sold in different quantities and in different types of packages. Packages are often designed to hold specific quantities of goods. The goods that are sold have a mass, but so does the container that they are packed in. We can find the mass of the contents to be packed as well as the mass of the container we are to fill or load.

Tare mass is the weight of an empty container or vehicle.
Net mass (or payload) is the weight of the goods only
Gross mass (total weight) is the weight of both the container and the goods.

EXAMPLES

a) A packet of snacks is 120g.The mass of the empty packet is 20g. What is the mass of the snacks?

Net mass=gross mass –tare mass
a) 120g-20g=100g

b) A jam jar's net mass is 500g.The mass of the jar is 50g.What is its gross mass?

Gross mass=net mass +tare mass

b) 500g+50g=550g

IT'S YOUR TURN!

EXERCISES

	Gross mass	Tare mass	Net mass
a)	2 450kg	400g	-
b)	-	260g	7 000 kg
c)	250kg	-	200 kg

REFERENCE SHEETS & REMINDERS

- ✓ Tare is the empty weight of a container
- ✓ The total mass of the load and that of the container is the gross mass
- ✓ The net mass is the mass after subtracting mass of the container

2.7 VOLUME AND CAPACITY

By the end of this Sub - Unit, you will be able to:	
state and use units of volume and capacity	*Mini Lesson 2.7.1*
measure volume	*Mini Lesson 2.7.2*
compute volume up to a cubic metre $(m)^3$	*Mini Lesson 2.7.3*
Measure capacity	*Mini Lesson 2.7.4*

MY TOOLBOX FOR LEARNING

2.7.1.1 MINI-LESSON -- State and Use Units of Capacity and Volume

Volume is the amount of space taken up by an object. Capacity is the ability of an object to carry or hold a substance. Volume applies to objects that can be solid, liquid or gas and measured in cubic units which is 3 dimensional. For example, the volume of a rectangular house is how much space it occupies in the world. Let's say the house is 8m long, 5m wide and 2m high. You multiply the l(length) x w(width) x h(height) and express it in cubic metres. The volume of the house is $80m^3$.

Capacity on the other hand, measures what an object can contain within it. Like how much a bottle or a cup can contain. In the case of our house above, we can also measure how much space is inside of it. Capacity is also measured in cubic units.

2.7.1.2 EXAMPLES

a)Give the units of measurement you may use for a bottle of juice

b)State the units of measurement used for a bucket of water

c)Give the volume of a box with a length of 8cm ,a width of 4cm and a height 6cm

SOLUTION

a)Capacity-*ml and litres*
b)Capacity-litres
c)Volume m^2

IT'S YOUR TURN!

EXERCISE

State the unit of measurement for the following
1)A tank of water
2)A teaspoon of medicine
3)A bottle of coke
4)What is the volume of a house with length that measures 6m width that measures 3m and a height that measures 7m

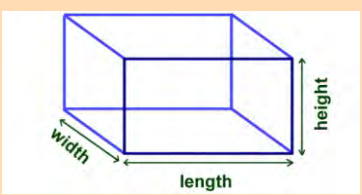
MY TOOLBOX FOR LEARNING

2.7.2.1 MINI-LESSON -- Compute Volume Up to a Cubic Metre(m^3)

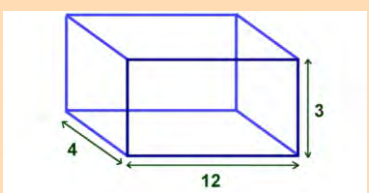
Calculating Volume depends on its shape. To find the volume of a cube or rectangular prism we need to measure length, width and height. The formula to find volume (V) is V = Length x Width x Height. The answer has to be given in cubic units (units^3).

EXAMPLES

A)

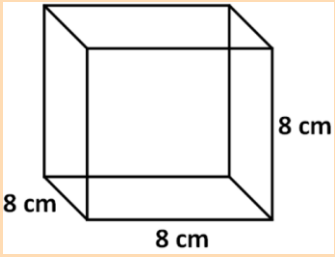


In this example



a rectangular prism the measurements are in cm, V = L x W x H = 12 x 4 x 3 = 144cm^3.

B) This next example is of a cube. A cube, is like a 3 dimensional square and has equal sides



V = l x w x h
= 8cm x 8cm x 8 cm = 215cm^3

C) The volume of a tank is 60cm^3. The length is 10 cm and the width is 3cm. What is the height?

In this type of problem you have to solve using what you know. Lay out the information and identify what you need to solve.

V = L x W x H = 60cm^3

V = 10cm x 3cm x ☐ = 60cm^3

Multiply given numbers 10cm x 3cm = 30cm^2.

Now , what number can be used to multiply 30cm^2 to give 60cm^3.

Divide 60cm^3÷30cm^2=2cm

2.7.2.3 REFERENCE SHEETS & REMINDERS

1 cm^3	**one cubic centimetre**
1m^{3-}	**one cubic metre**
1 ml	**one millilitre**
1l	**one litre**

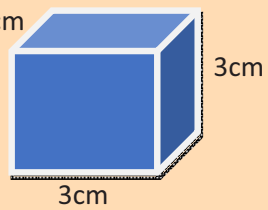
IT'S YOUR TURN!

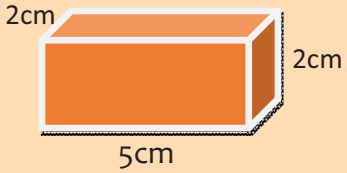
EXERCISES

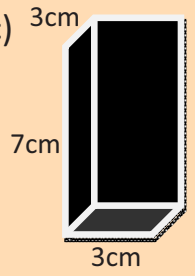
1) A stone was thrown into a bottle of water that measured 200ml and its level rose to 500ml. What is the volume of the stone.

2) A box has a volume of 1 250cm^3. How many smaller boxes of a volume of 125 cm^3 can be packed into that box.

3)Find the value of the given shapes below

a) 

b) 

c) 

MY TOOLBOX FOR LEARNING

2.7.3.1 MINI-LESSON -- Measuring Capacity

Capacity is the ability of an object to carry or hold a substance that may be solid liquid or gas. Capacity can be measured in millimetres and litres. Capacity is the measure of how much space is available to hold something. Examples of containers are jugs, tanks, a bucket and a swimming pool.

EXAMPLES

For example, a jug contains 2 litres and 300 millilitres. The contents is able to fill 5 glasses in equal amounts. What is the capacity of each glass?

1) 2 300 ml ÷ 5 = 460 ml

Show all working here and remember to include the unit of measurement.

2) There is 985 ml of orange juice in a jug. There is another jug with 750ml of orange juice. If we pour both jugs of juice in another larger container to fill it. How much juice is it altogether?
We need to align the amounts and add
985 ml + 750 ml = 1 735ml

IT'S YOUR TURN!

TASK

imagine that you have a packet of fresh milk that holds 500ml of milk. Imagine If you had 12 such packets. How much milk do you have?

2.8 DIRECTION, ANGLES AND LINES

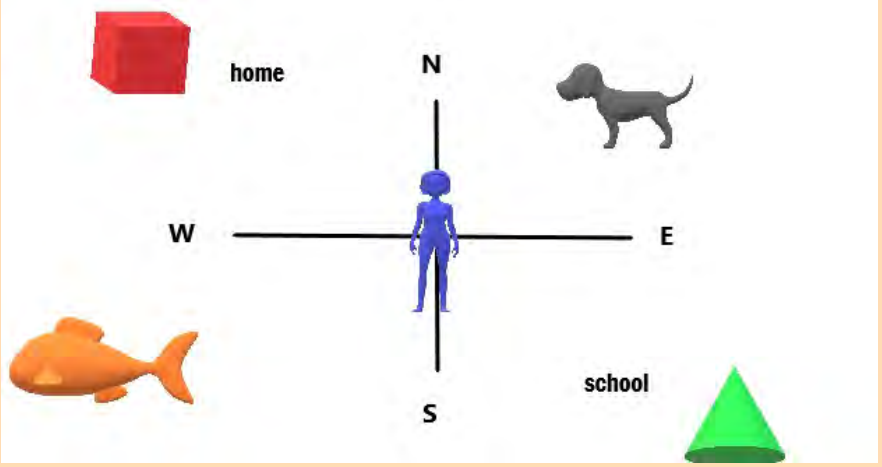
By the end of this Sub - Unit, you will be able to:	
show direction of points from a reference point	*Mini Lesson 2.8.1*
identify and name types of angles	*Mini Lesson 2.8.2*
calculate missing angles	*Mini Lesson 2.8.3*
Convert fractions by revolutions	*Mini Lesson 2.8.5*

MY TOOLBOX FOR LEARNING

2.8.1.1 MINI-LESSON -- Show Direction of Points from a Reference Point

a) Rudo was facing west, she made one right-angle clockwise turn. What direction is she facing now?
b) Rudo then turns two and a half right angle in the clockwise direction from north. What direction is she facing now?
c) Rudo faces south and takes one right angle turn anti-clockwise what direction will she face?

Solution
a)North
b)outh west
c)East



1. What direction is home from the dog?
2. Give the direction of the fish from Rudo
3. Where is Rudo if you area standing at school?

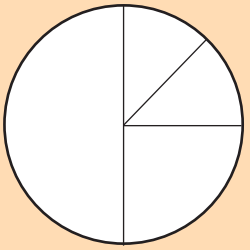
2.8.1.3 REFERENCE SHEETS & REMINDERS

Cardinal points :	N- North E- East W- West S-South
Ordinal points:	NE-north east SE-south east SW-south west NW-north west

IT'S YOUR TURN!

EXERCISES

1. Name the four cardinal points.
2. Give the four ordinal points..



1)Draw a circle and label the parts indicated above

MY TOOLBOX FOR LEARNING

2.8.2.1 MINI-LESSON -- Identify and name types of Angles

An angle is the space between two lines . In mathematics, lines 'intersect' when they cross each other or 'meet'. Angles are measured in degrees.

Angles have different features and are also given different names according to their features:

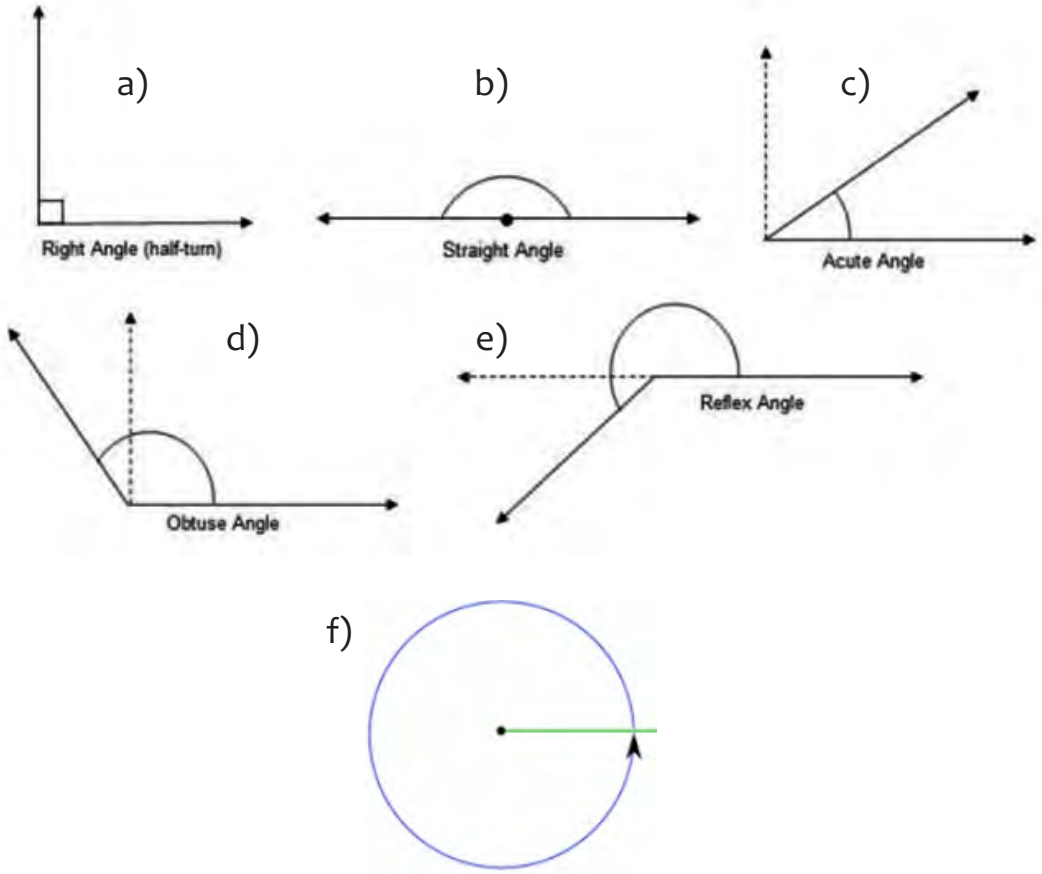
a) ACUTE ANGLE: an angle between 0° and 90°
b) RIGHT ANGLE: a 90° angle
c) OBTUSE ANGLE: an angle between 90° and 180°
d) REFLEX ANGLE: More than 180° and less than 360°
e) REVOLUTION: an angle that has the value of four right angles. Its value is 360°

2.8.2.2 EXAMPLES

a) How many degress does a right angle have?
b) What name is given to a line of 180°.

Solution
a) 90°
b) a straight line

2.8.2.3 REFERENCE SHEETS & REMINDERS



IT'S YOUR TURN!

EXERCISES

1.

a) What is an angle more than 180° but less than 270°

b) What is the name of an angle more 90° but less than 180°

c) What is the name given to an angle less than 90°.

d) Draw a reflex angle

e) Draw an obtuse angle

f) Give the value of a straight line angle

g) Draw a right angle

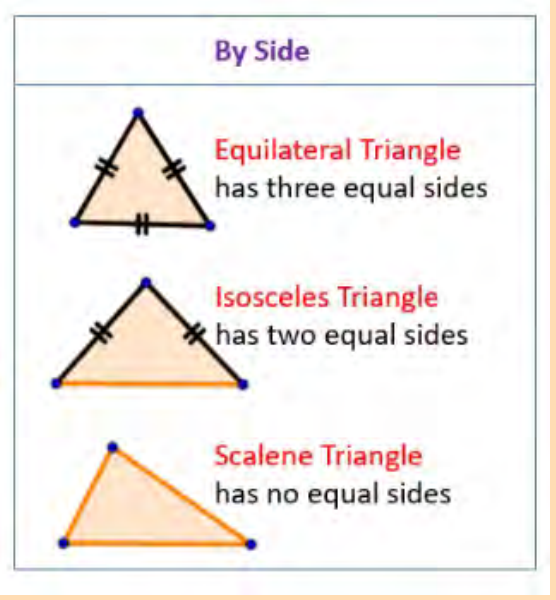
h) What is a right angle

MY TOOLBOX FOR LEARNING

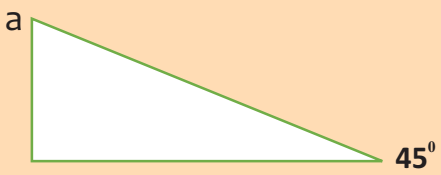
2.8.3.1 MINI-LESSON -- Calculate Missing Angles

2.8.3.2 EXAMPLES

Types of Triangles



1. Solve for a



What is the value of angel a

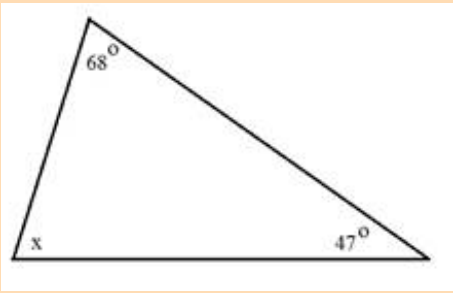
$90^{\circ} + 45^{\circ} + a = 180^{\circ}$

$135^{\circ} + a = 180^{\circ}$

$a = 180^{\circ} - 135^{\circ}$

$a = 45^{\circ}$

1. Find the value of angle x in this Scalene triangle



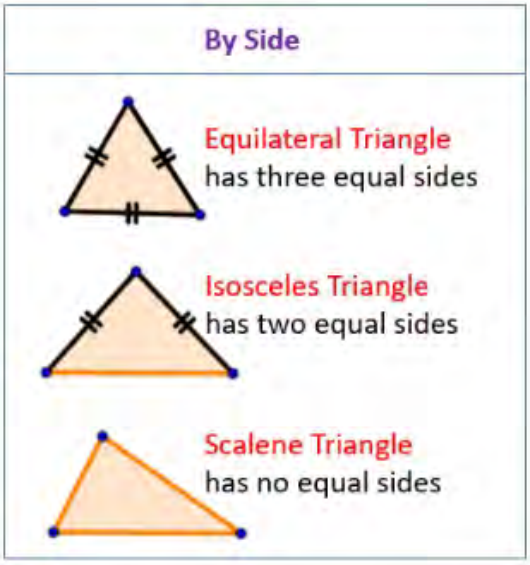
$68^{\circ} + 47^{\circ} = 115^{\circ}$

$180^{\circ} - 115 = 65^{\circ}$

$x = 65^{\circ}$

2.8.3.3 REFERENCE SHEETS & REMINDERS

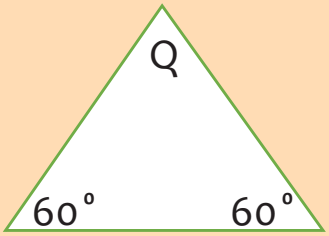
Types of Triangles

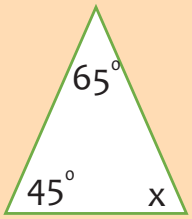


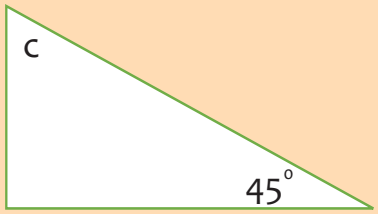
IT'S YOUR TURN!

EXERCISE

Calculate the value of the missing angle

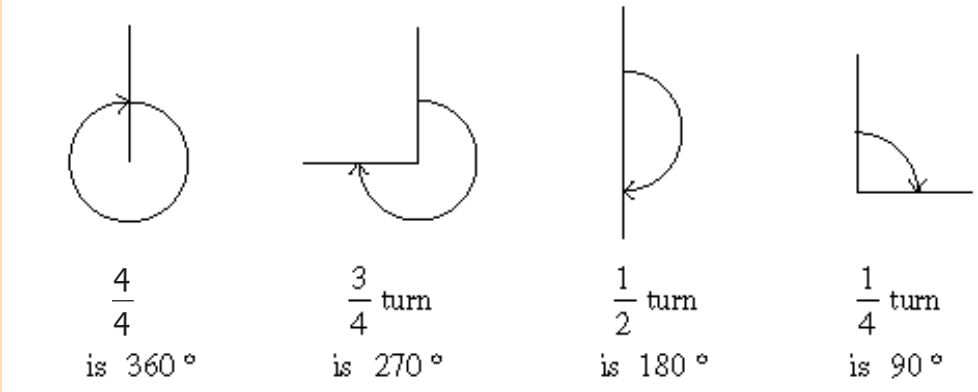






MY TOOLBOX FOR LEARNING

2.8.5.1 MINI-LESSON -- CONVERT FRACTIONS BY REVOLUTIONS



A revolution is made up of four right angles that amount to360°. This can be expressed as fractions of the revolution.

EXAMPLES

1) of a revolution,

To find of 360, multiply x =

=360 4 = 90°.

2) of a revolution = of 360°

= x = = 270°

3) of a revolution = of 360

= x = = 360 10 = 36°

EXERCISES

a) Find three quarters of revolution

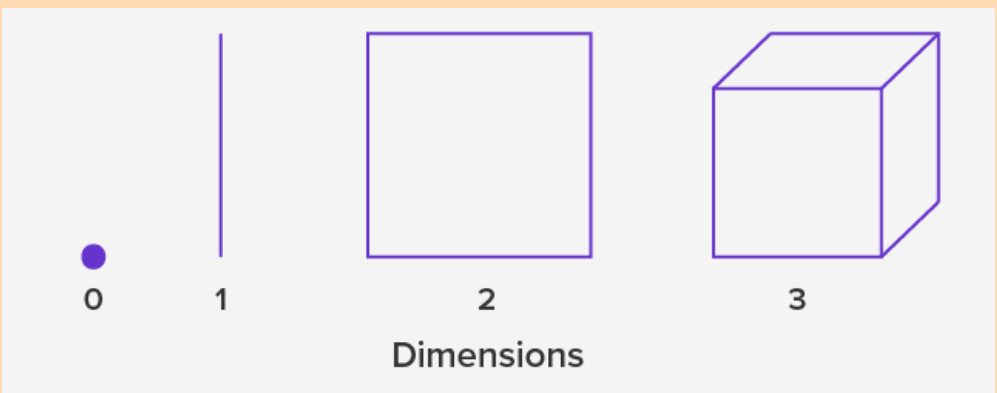
b) What fraction of a revolution is 2 right angles?

2.9 SHAPES

By the end of this Sub - Unit, you will be able to:	
show direction of points from a reference point	*Mini Lesson 2.8.1*
identify 2 and 3 dimensional shapes	*Mini Lesson 2.9.1*
list properties of 2 and 3 dimensional shapes	*Mini Lesson 2.9.2*
construct models of 3 dimensional shapes	*Mini Lesson 2.9.3*

MY TOOLBOX FOR LEARNING

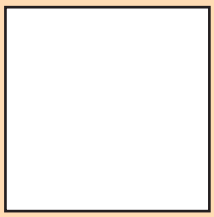
2.9.1.1 MINI-LESSON -- 2 And 3 Dimensional Shapes



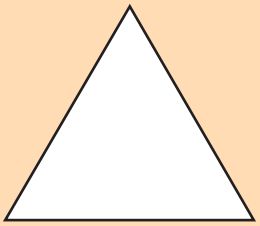
Dimensions are the measurement of the length, width, and height of anything. An object can be One-dimensional (or 1D) Two-dimensional (or 2D)

Three-dimensional (or 3D). An object that is zero dimensional is a point that has no length, width or height. It has no size. It tells about location only.

The 2-dimensional shapes or objects have two dimensions which are length and width. A square, circle, rectangle, and triangle are examples of two-dimensional objects.



Square



Triangle

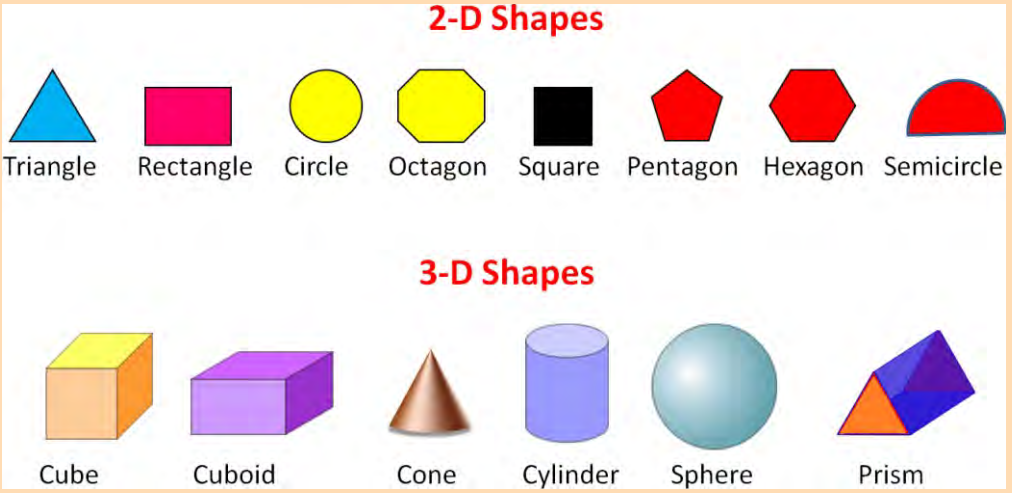
Rectangle

3-D shapes	Examples	
Cube	 Rubric cube	 Dice
Sphere	 Ball	 Round
Cone	 Carrot	 cone
Rectangular prism and cuboid	 Book	 Gift

Three-dimensional shapes are solid figures or objects or shapes that have three dimensions – length, width, and height. Unlike two-dimensional shapes, three-dimensional shapes have thickness or depth.

A cube and cuboid are examples of three-dimensional objects, as they have length, width, and height.

EXAMPLES



IT'S YOUR TURN!

EXERCISE

a) Draw a square, rectangle and a triangle.

b)Draw and write the name of any 3 dimensional shape.

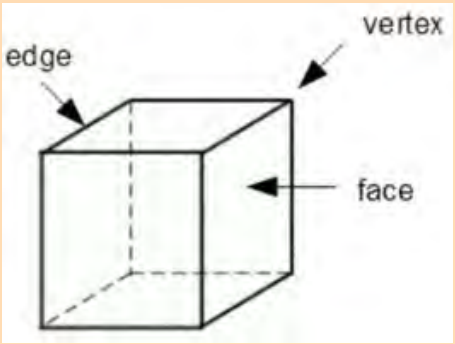
MY TOOLBOX FOR LEARNING

2.9.2.1 MINI-LESSON -- THE PROPERTIES OF 2 AND 3 DIMENSIONAL SHAPES

THE PROPERTIES OF 2 D SHAPES

2 D Shapes	Properties of 2 D Shapes	
Square	Four equal sides	Four equal angles(90°)
Rectangle	2 sets of 2 equal sides	Four equal angles(90°)
Triangle	Can have no, 2 or 3 equal sides	Can have no, 2 or 3 equal angles
Circle	Constant diameter and radius	Almost infinite axes of symmetry going through the centre
pentagon	5 sides (can be equal)	5 angles (can be equal)
hexagon	6 sides (can be equal)	6 angles (can be equal)
Octagon	8 sides (can be equal)	8 angles (can be equal)
Parallelogram	2 sets of 2 equal sides	2 sets of 2 equal angles
Rhombus	All sides the same length	2 sets of 2 equal angles
Trapezium	At least 2 parallel sides	Can have pairs of equal angles

THE PROPERTIES OF 3 D SHAPES



What are the properties of 3D shapes?

· Edges: An edge is where two faces meet. For example a cube has 12 edges, a cylinder has two and a sphere has none.

· Vertices: A vertex is a corner where edges meet

Name of Shape	No. of Faces	No of Vertices	No. of Edges
Cube	6	8	12
Cuboid/ Rectangular Prism	6	8	12
Sphere	1	0	0
Cone	2	0	1

EXAMPLES

1. Give the properties of square.

Solution

i) Has 4 sides that are equal.

ii) Four interior right angles that add up to 360°

iii) The opposite lines on a square are parallel

iv) Formular for finding the area of a square is L X W=units^2

v) Perimetre is L+W x 2= depends on units given on the shape

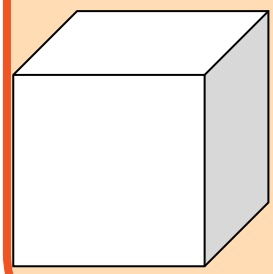
2.9.2.3 REFERENCE SHEETS & REMINDERS – SEE ABOVE

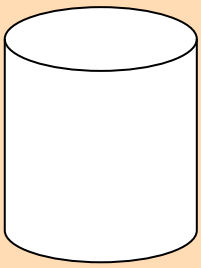
IT'S YOUR TURN!

ACTIVITY

There are many shapes in your environment. See if you can find boxes and shapes such **as** tissue rolls. The tissue roll will require you to cut out and glue the end to make a cylinder.

Use readily available material in your area to make the shapes shown below.





2.10 Data Handling

By the end of this Sub- Unit, you will be able to:	
interpret data from tables	Mini Lesson 2.10.1
represent data on tables	Mini Lesson 2.10.1
read and extract information from graphs and pie charts	Mini Lesson 2.10.
use statistical graphs in life situations	Mini Lesson 2.10.2

MY TOOLBOX FOR LEARNING

2.10.1.1 MINI-LESSON – INTERPRET DATA FROM TABLES

Data interpretation is the idea of making sense out of some collection of information. This information/data can be presented in form of tables, graphs pie charts.
Let us try and interpret data from a table that shows the number of eggs laid by
Hens at poultry farm from Monday to Friday

DAILY EGG PRODUCTION

DAY	NUMBER OF EGGS
Monday	22
Tuesday	31
Wednesday	45
Thursday	22
dFriday	27

Use the data above to answer questions below.

1) How many eggs were laid on Tuesday?

2)Using the information above what is the average number of eggs laid by the hens from Monday to Friday.

22 + 31+ 45 + 22 + 27 = 145÷5 =

Solution
1)31
2)25 eggs

IT'S YOUR TURN!

ACTIVITIY

Record information on a table daily of vehicles that pass through the road near your home. This should be from Monday to Friday.

You should be able to tell:

a) Which day had the lowest number of vehicles

b) What is the average number of vehicles that pass through from Monday to Friday?

UNIT 2 EXAM PRACTICE

1. Find the sum

(a) $\frac{1}{5} + \frac{3}{5} =$ (b) $\frac{2}{7} + \frac{1}{7} =$ (c) $\frac{3}{8} + \frac{3}{8} =$ (d) $\frac{4}{9} + \frac{2}{9} =$

2(a) Mr Dube had 1/2litres of petrol he bought another 1/2litres. How many litres does he have now?

(b) If Chantelle has 1/8 of a cake and Shalom also has 3/8 of that same cake. If they put their cake together at break time to eat. How much cake do they have altogether.

3. Find the difference of the following

(a) $\frac{9}{10} - \frac{5}{10} =$ (b) $\frac{8}{20} - \frac{4}{20} =$ (c) $\frac{5}{8} - \frac{3}{8} =$ (d) $\frac{5}{7} - \frac{3}{7} =$

4.(a) On Monday 3/7 learners attended school. What fraction was absent that Monday?

(b) Mother baked some scones and she gave the neighbour 1/3 of the total scones. What fraction was left for the family to have at breakfast?

(c) Blessing had a rope. He cut 4/9 for his friend Jayden. What fraction of rope was left?

5

(a) $\frac{146}{30}$ expressed as a mixed number

A $3\frac{3}{10}$ **B** $4\frac{26}{30}$ **C** $1\frac{46}{30}$ **D** $4\frac{13}{15}$

(b) $\frac{25}{100}$ as a fraction in its lowest terms is

A $\frac{1}{4}$ **B** $\frac{1}{5}$ **C** $\frac{1}{2}$ **D** $\frac{2}{10}$

(c) $2\frac{3}{4} + 3\frac{4}{5} + 1\frac{1}{10} =$

A $6\frac{13}{20}$ **B** $6\frac{13}{20}$ **C** $5\frac{1}{10}$ **D** 6

(d) $1\frac{3}{4} - \frac{13}{20} =$

A $\frac{22}{20}$ **B** $1\frac{1}{10}$ **C** $1\frac{2}{10}$ **D** $\frac{17}{20}$

(e) $\frac{7}{9}$ decreased by $\frac{1}{3}$ =

A $\frac{4}{9}$ **B** $\frac{8}{12}$ **C** $\frac{6}{9}$ **D** $\frac{6}{12}$

6. Simplify

(a) $1\frac{1}{4} + 3\frac{1}{3} + 2\frac{1}{2}$ =

(b) $5\frac{3}{7} - 2\frac{9}{10}$ =

(c) $1\frac{4}{5} - \frac{2}{3}$ =

(d) $\frac{4}{9} + 1\frac{4}{5}$ =

(e) $1 \quad -\frac{18}{20}$

7.Mother bought $3\frac{1}{2}$ kgs of beef. She used $\frac{1}{5}$ of the beef to make pies. How much beef was left?

8.

(a) ½ × ⅔ =							
	A	½	**B**	⅓	**C**	⅖	**D**	¾
(b) ⅖ × ⅓ =							
	A	⅖	**B**	2/15	**C**	2/8	**D**	¾
(c) ⅓ × ½ =							
	A	⅓	**B**	¼	**C**	1/6	**D**	½
(d) ⅔ × ¼ =							
	A	¼	**B**	⅓	**C**	¾	**D**	1/6
(e) 2¼ × 1⅓ =							
	A	2 ½	**B**	1 ½	**C**	6	**D**	3

9.Simplify

(a) $\frac{9}{10} \times \frac{2}{3}$ (b) $\frac{4}{5} \times \frac{1}{2}$

10. Solve the following problem: $1\frac{2}{3} \times 2\frac{1}{5}$

11.A tank has 240L of water. If Mr Moyo used ⅔ of the water, how many litres did he use?

12.John has 2 ½ litres of petrol. If James has 1 ½ times more, how many litres does he have?

(a) ¾ ÷ ½ =

A 1 ½ **B** 2 ½ **C** 3¼ **D** 1¼

(b) 9/10 ÷ 5/10 =

A 5/9 **B** 1⅘ **C** 4/5 **D** 2⅘

(c) 7/8 ÷ 3/8 =

A 1⅓ **B** 1⅜ **C** 2⅓ **D** 2⅛

(d) 3/18 ÷ 3/6 =

A ½ **B** ⅔ **C** ⅓ **D** ¾

(e) ½ ÷ ½ =

A 1 **B** ½ **C** ⅔ **D** ¾

14.Solve

(a) ¾ ÷ ½ (b) $\frac{3}{10}$ divided by $\frac{2}{5}$

(c) $\frac{7}{8} \div \frac{4}{5}$ (d) $\frac{5}{8} \div \frac{1}{2}$

(e) $\frac{3}{4} \div \frac{1}{3}$

15. Find the quotients

(a) 3¾ ÷ 1 ½ =							
	A	2 ½	**B**	3¼	**C**	4 ½	**D** 1⅓
(b) 3 ½ ÷ 1⅔ =							
	A	3¼	**B**	2 1/10	**C**	2 ½	**D** 1 ½
(c) 2¼ ÷ 1 ½ =							
	A	2 ½	**B**	1⅔	**C**	1 ½	**D** 3 ½
(d) 4½ ÷ 1⅔ =							
	A	4 ½	**B**	2 ½	**C**	3⅓	**D** 2 7/10
(e) 5 ½ ÷ 2⅓ =							

	A	$3\frac{1}{14}$	B	$\frac{11}{14}$	C	$\frac{5}{14}$	D	$2\frac{5}{14}$

16.Calculate

(a) 2¼ ÷ 1⅕ (b) 1⅔ ÷ 4⅔ (c) 7 ½ ÷ 2⅔ (d) Divide 4 ½ by 2

(e) Sam had 5 ½ L of petrol. If he put the petrol into 2 ¾L bottles, find the number of bottles.

UNIT THREE:

Unit Overview

3.1	NUMBER Decimal numbers	a)identify, read and write decimal numbers with 3 decimal places and find place value of digits in decimal numbers b) Write decimal numbers in expanded notation c) Compare decimal fractions d) Round off decimal numbers to the nearest unit, tenth and hundredth
3.2	OPERATIONS Proportion, ratio and scale	a) Calculate direct and inverse proportion b) Express one quantity as a ratio of another share using ratio c) convert scale distance to actual distance and vice versa
3.3	MEASURES Length (units up to KM and non-standard units)	a) Measure length and distance using spans and paces b) find length and distance in metres and kilometres c) calculate perimeter of figures d)draw lines and simple plans to scale
3.4	MEASURES Rate	a) Relate distance, speed and time b) calculate distance, speed and time c) apply knowledge of rate in problem solving
3.5	MEASURES Area	a) identify units of area b) calculate area of square and rectangle c) find area of triangles d) calculate area of composite shapes

3.1 DECIMAL NUMBERS UP TO 8 DIGITS, DECIMALS UP TO 3

By the end of this Sub- Unit, you will be able to:	
Identify, read, write and find place value for decimal numbers with 3 decimal places	Mini Lesson 3.1.1
Write decimal numbers in expanded notation	Mini Lesson 3.1.2
compare decimal fractions	Mini Lesson 3.1.3
round off decimal numbers to the nearest unit, tenth and hundredth	Mini Lesson 3.1.4

MY TOOLBOX FOR LEARNING

3.1.1.1 MINI-LESSON – Identify read and write decimals up to 3 places

Decimals are numbers that have a comma. For example, 0,75 reads as zero comma seventy-five. It has 2 decimal places and is equal to 75/100

Examples: See below the following numbers on a place value chart:

a)471,832 b)1 82,385 c)3 467 213,321

IT'S YOUR TURN!

EXERCISES

1. Show the value of the following numbers on an abacus.

a) 128,45 b) 8962,48 c) 427,592 d) 734,592 e) 32,645
f) 17,29 g) 1 486,325 h) 218,45

MY TOOLBOX FOR LEARNING

3.1.2.1 MINI-LESSON -- Write Decimals Numbers In Expanded Notation

There are different ways to represent numbers. When we normally write a number it is in standard notation. Occasionally we want to show numbers as the sum of each digit multiplied by its matching place value.

Examples:

Standard Notation	Expanded Notation
296	200 + 90 + 6
274,936	200+70+4+9+3+6 10 100 000
274,396	200+70+4+3+ 9+ 6 10 100 1 000
426,459	400+20+6+4 +5 +9 10 100 1 000
426,459	400+20+6+4 +5+ 9 10 100 1 000
1478,39	1000+400+70+8+3 +9 10 100

IT'S YOUR TURN!

EXERCISES

1. Write in Expanded notation

(a) 19,74 (b) 1 874,236 (c) 386,129 (d) 399,41

MY TOOLBOX FOR LEARNING

3.1.3.1 MINI-LESSON - COMPARE DECIMAL FRACTIONS

When comparing decimal numbers we use the symbols:

less than	greater than	equal to
<	>	=

To compare 19,4 and 17,4 we look at the whole numbers. 19 is greater than 17. Write 19,4 > 17,4 and say 19,4 is greater than 17,4.

Examples:

A. 0,456 0,556.

Compare tenths first that is 4 and 5. 4 is smaller than five

Write 0,456 < 0,556.

B. 0,925 0,923. Compare tenths first, they are equal so compare hundredths. Hundredths are equal so compare thousandths in 5 and 3. 5 is greater than 3 so we write 0,925 > 0,923.

3.1.3.3 REFERENCE SHEETS & REMINDERS

When comparing decimal numbers first look at;

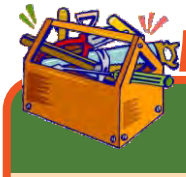
1. Whole numbers
2. Tenths
3. Hundredths
4. Thousandths

IT'S YOUR TURN!

EXERCISES

(a) 1,45□1,461 (b) 2,945□ 3,4 (c) 0,745□0,749
(d) 0,129 □ 0,139

4. a) Write any number up to 8 digits to 3 decimal places.
   b) Draw a place value table and write the numbers below.



MY TOOLBOX FOR LEARNING

3.1.4.1 MINI-LESSON

Round off decimals numbers to the nearest unit,tenth and hundredth

Examples:
- round off 28,362 to the nearest tenth
We underline the digit before the tenths which is 6
We identify whether the digit is above or below 5, in this case 6 is above 5 so we round upwards.
and 6 become zeros , 3 becomes 4 and 28 does not change .
Therfore our answer becomes 28,400

IT'S YOUR TURN!

EXERCISES

Round Off The Following To The Nearest Tenth
A)3,46 B)45,065 C) 789,37 D)52,94

3.2 PROPORTION, RATIO AND SCALE

By the end of this Sub- Unit, you will be able to:	
calculate direct and inverse proportion	Mini Lesson 3.2.1
express one quantity as a ratio of another	Mini Lesson 3.2.2
convert scale distance to actual distance and vice versa	Mini Lesson 3.2.3

MY TOOLBOX FOR LEARNING

3.2.1.1 MINI-LESSON – Calculate direct and inverse proportion

Proportion is a term used to discuss relationships between 2 quantities. There are 2 types of proportional relationships: Direct Proportion and Indirect Proportion.

Watermelons	Dollars
1	2
2	4
3	6

Examples:
An example of direct proportion:
1 watermelon costs $2 dollar
When you buy 2 watermelons you pay more.

Watermelons In your kitchen	Dollars in your wallet($10)
1	$8
2	$6
3	$4

IT'S YOUR TURN!

EXERCISES

1) 2 packet of biscuits costs $2,56. Now find the cost of
a) 1 packet b) 5 packets c) 4 packets
Draw a table like this one.

2 packets	$2,56
1 packet	
5 packets	
4 packets	

2) a) 4 men b) 6 men c)8men

MY TOOLBOX FOR LEARNING

3.2.2.1 MINI-LESSON -- RATIO

Ratio is used when comparing quantities or size of one number to another.

Ratio is expressed in 3 ways:

In digits	2:3
In words	2 is to 3
In a fraction	⅔

No. of SHEEP	No. of GOATS	Ratio
5	1	5:1
10	3	10:3
15	6	5:2
1250	50	25:1

No. of Sheep to No. of Goats	No. Goats to No. of Sheep
5:1	1:5
5 to 1	1 to 5

The order in which the numbers are presented should not be changed e.g 5 sheep and 1 goat should be 5:1 and not vice versa

No. of Sheep to No. of Goats	No. Goats to No. of Sheep
5:1	1:5
5 to 1	1 to 5

Examples:

An example of direct proportion:

1 watermelon costs $2 dollar

When you buy 2 watermelons you pay more,

$$\frac{5}{20} \qquad \frac{5}{}$$

$$\frac{2}{5} \times \frac{100}{} = 40$$

John will get 40 mangoes.

$$3 \times \frac{20}{5} \times \frac{100}{} = 60$$

James gets 60 mangoes

IT'S YOUR TURN!

EXERCISES

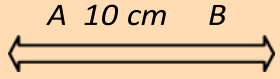
a) Share $ 45 between James and John in the ratio 1:2
b) Share $ 18 between Taurai and Petter in the ratio 1:5
c) Share 24 mangoes between Tendai and Sarudzai in the ratio 1:3
d) Share 15 oranges between Tomu and Didi in the ratio 2:3

MY TOOLBOX FOR LEARNING

3.2.3.1 MINI-LESSON - Distance Conversion.

Scale is the ratio of a model or other representation to the actual size of the real object. For example, a doll to a real-life person; a picture of a mountain and the mountain itself. We use scale to describe how a large object is reduced to a smaller size, or vice versa.

For example, a map of your region could be drawn so that 1cm=5km which is equivalent to 1:500 000



1cm=5km

10 cm= ? km =

$\frac{10}{1} \times \frac{5}{1}$ = 50 km

Examples:

1. Scale 1: 200. Find the actual distance representing 10cm. Actual distance = 10cm ×200 =2 000cm =20 m.
2. Scale 1cm: 5km. Find the actual distance representing 20 cm. Actual distance =20 cm ×5km=100km

REMINDERS

Scale can be expressed as a ratio or as a fraction eg 1:10 000

IT'S YOUR TURN!

EXERCISES

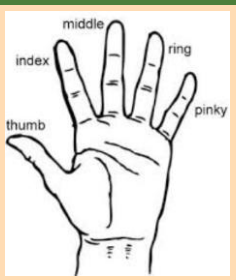
1)Using a scale of 1cm:200m.
Find out the actual distance for the following lengths
a)5cm b)15 cm c)7cm d) 9cm

3.3 LENGTH

By the end of this Sub- Unit, you will be able to:	
measure length and distance using spans and pace	*Mini Lesson 3.3.1*
find length and distance in metres and kilometres	*Mini Lesson 3.3.2*
calculate perimeter of figures *draw lines and simple plans to scale*	*Mini Lesson 3.3.3*

MY TOOLBOX FOR LEARNING

3.2.3.1.1 MINI-LESSON – Measure Length And Distance Using Spans And Pace



In this activity we are going to measure length using spans and paces. A span is the length of space between a stretched-out thumb and little pinky finger. A pace is a step taken with when you walk. We will use these informal units to measure a house and a table. If you use your span and your pace you will have an excellent way to estimate measurements without a tape measure or ruler.

We can see by comparing the space between our thumb and the small finger.

Examples:

Bright measured the table and it measure
Length = 5 spans
Width = 2 spans

Now Bright wants to find the Length and Width of his House.The house measures
Length = 12 paces
Width = 5 paces

REMINDERS

-a span is a space from the tip of the thumb between and the tip of the little finger.
-a pace is a foot step.

IT'S YOUR TURN!

EXERCISES

- Now measure the width and length of any object in spans and record

MY TOOLBOX FOR LEARNING

3.3.2.1 MINI-LESSON –LENGTH AND DISTANCE IN METRES AND KILOMETRES

In this section we will work with standard units of measurement. Centimeters (cm) are used to measure short distances and metres (m) are used to measure medium distances like the length of a football pitch. Kilometres (km) are used to measure long distances.
Now take a ruler and measure the distance between and any object near

3.3.2.2 EXAMPLES

a) 158cm = $\frac{158}{100}$ m. 1 m =100cm 158cm=1,58m

b). 7 458m= $\frac{7\,458}{1\,000}$ km. 1km =1000m 7 458m =7,458km

3.3.2.3 REFERENCE SHEETS & REMINDERS

1cm=10mm
1km=100cm
1km=1 000m

IT'S YOUR TURN!

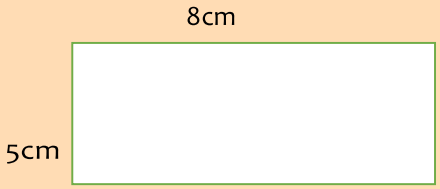
EXERCISES

a)75cm=-mm
b)1 642m=-cm
c)3,4km=-m

MY TOOLBOX FOR LEARNING

3.3.3.1 MINI-LESSON -- PERIMETER

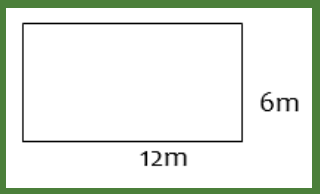
In this activity we will calculate the perimeter of figures, draw lines and simple plans to scale. Perimeter refers to the distance right round a shape. For example, this rectangle,



= 8cm +5cm+5cm+8cm = 26cm
Note: there are two equal lengths and two equal widths
Perimeter = (L+W) ×2
= (8cm+5cm) ×2
=13cm ×2 =26cm

3.3.2.2 EXAMPLES

1. Find the perimeter of the following rectangles.



2. Find the perimeter

Perimeter (P) = (L +W) ×2
= (18cm+10cm) ×2

3.3.2.3 REFERENCE SHEETS & REMINDERS

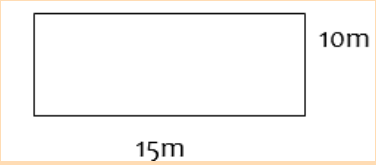
To find the perimeter of a rectangle;

1. add length and width
2. multiply by two
3. write correct unit measurement
4. perimeter of a circle is its circumference

IT'S YOUR TURN!

EXERCISES

1)Find the perimeter of Mr Moyo's garden below



2)What is the perimeter of a square shaped piece of lawn which has sides that are 6m?

3.4 RATE

By the end of this Sub- Unit, you will be able to:	
relate distance, speed and time	Mini Lesson 3.4.1
calculate distance, speed and time	Mini Lesson 3.4.2
apply knowledge of rate in problem solving	Mini Lesson 3.4.3

MY TOOLBOX FOR LEARNING

3.4.1.1 MINI-LESSON - SPEED

In this unit, we will use speed as our example. The two quantities we will use to calculate speed are distance and time Speed is calculated in km/hr. To calculate speed we divide distance covered by time taken.

$$Speed = \frac{distance}{time} \qquad s = \frac{d}{t}$$

3.4.1.2 EXAMPLES

1) A car took 30mins to cover 80km. Calculate its speed in km/hr. Note that you need to convert time to hours as speed is to be calculated in km/hr. So 30mins = 1 hr

$S = \frac{D}{T}$ = 80KM ÷ $\frac{1}{2}$hr = $\frac{80}{1} \div \frac{1}{2} = \frac{80}{1} \times \frac{2}{1}$ Note = you must invert

=80km ×2

= 160km/hr

IT'S YOUR TURN!

EXERCISES

Fill in the speed

DISTANCE	*TIME*	*SPEED*
100km	*4hrs*	-
240km	*8hrs*	-
360km	*6hrs*	-
480km	*8hrs*	-
540km	*9hrs*	-

1. Calculate the following

a) A car took 3hrs to cover 240km. calculate its speed in km/hr

b) A car took 45mins to cover 120km. calculate distance travelled by the car.

MY TOOLBOX FOR LEARNING

3.4.2.1 MINI-LESSON - DISTANCE

In this activity we will learn to calculate distance.The standard unit of distance is in kilometres. The standard unit of distance is kilometres. To calculate distance, you multiply speed by time.

D = S xT

Distance = Speed x Time

3.4.2.2 EXAMPLES

Calculate distance covered in 40mins at 120km/hr

40mins = hr

Distance = speed ×time

3.4.2.3 REFERENCE SHEETS & REMINDERS

DISTANCE= SPEED ×TIME

IT'S YOUR TURN!

EXERCISES

DISTANCE	*TIME*	*SPEED*
	2hrs	*60km/hr*
	3hrs	*90km/hr*
	5hrs	*65km/hr*
	30mins	*90km/hr*
	45mins	*120km/hr*

MY TOOLBOX FOR LEARNING

3.4.3.1 MINI-LESSON - Calculating TIME

In this activity we will be calculating how much time it takes to travel a certain distance.

3.4.2.2 EXAMPLES

1. How long does it take to cover 150km travelling at 60km/hr.

Time = distance ÷ speed

= 150km ÷60

= 2 3

6

= 2 1hrs

2

3.4.2.3 REFERENCE SHEETS & REMINDERS

We can only calculate time when we are given distance and speed.

Time = distance ÷ Speed

IT'S YOUR TURN!

Calculate time taken

By the end of this Sub- Unit, you will be able to:	
identify units of area	*Mini Lesson 3.5.1*
calculate area of square and rectangle	*Mini Lesson 3.5.2*
find area of triangles	*Minin lesson 3.5.3*

DISTANCE	TIME	SPEED
120km		60km/hr
240km		80km/hr
270km		90km/hr
80km		160km/hr
120 KM		80km/hr
calculate area of composite shapes		*Mini Lesson 3.5.4*

MY TOOLBOX FOR LEARNING

3.5.1.1 MINI-LESSON - UNITS OF AREA

Area is the total space of a flat shape or space. The standard unit for area is square metres.

$A = L \times W$

Here are some other units that we often use to measure Area:

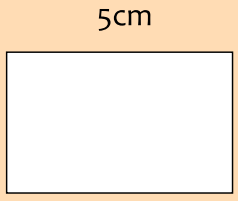
1 hectare (ha) = 10 000m2

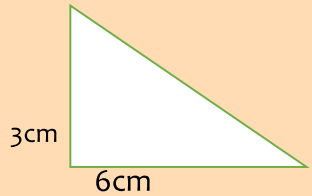
100 hectares = 1 km2

To calculate area of rectangle multiply length by width

5cm

Find the area of the rectangle below





8cmx5cm=40cm2

1x 6cmx3cm=

2

3xcmx3cm=9cm2

3.5.1.2 EXAMPLES

Mr Mkuriro's rectangular plot measures 90m by 100m. Calculate its area and give your answer in hectares.

i) Area is L x W = 90mx100m=9000m2

ii) 9 000m2÷10 000 = 0,9 hectares

IT'S YOUR TURN!

Note that 10 000m2 = 1 ha

1. Now use these to do the following conversions

A	250m^2	____ha
B	____m^2	5 *ha*
C	4 758m^2	____ha
D	____m^2	0.0475 *ha*
E	32 000m^2	____ *ha*

2. Calculate the following

(a) 158 000 m2=____km2

(b) 110 456m2= ha

(c) 9456m2= ___ ha

(d) 245ha = __ km2

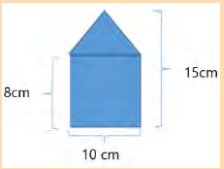
3a). Find the area of s rectangle measuring 10cmby 8cm.

b)find the area of the rectangle

MY TOOLBOX FOR LEARNING

3.5.2.1 MINI-LESSON - AREA OF COMPOSITE SHAPE

In this activity we will calculate the area of composite shape. A composite shape is a shape that can be broken down into two or more shapes.

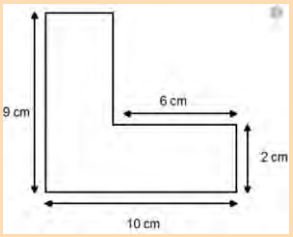


TRIANGLE = $\frac{B \times H}{2}$ $\frac{10 \times 7}{2} = \frac{\overset{35}{\cancel{70}}}{\cancel{2}}$ = 35 cm

Area of rectangle B = L X W= 10X8=80 cm2

IT'S YOUR TURN!

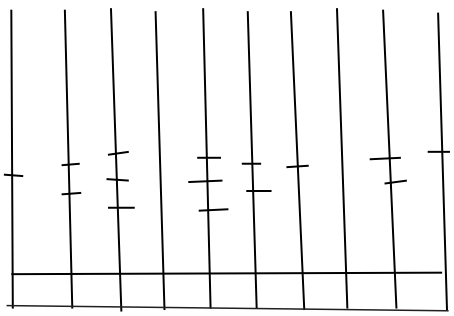
1)Find the area of the composite shape below



UNIT 3 EXAM PRACTICE

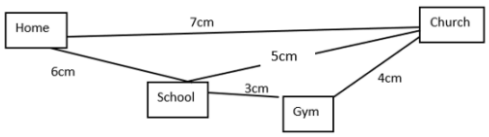
Answer all questions

1. Write 39.26 in words
2. Expand 192.04



3. Write the number shown on the abacus above
4. Compare the numbers using <,> =

   79.8 □ 83.2.
5. Round off 473.45 to the nearest whole number
6. 8 men will take 10 days to build a fowl run, working at the same rate. How many days do 4 men need to construct the same fowl run?
7. 4 dairy cattle fill a 20 litre bucket, with milk how many cattle will fill a 100 litre container?
8. 12 boxes have 600 books. How many books are in 20 boxes?
9. 5 trucks can deliver 9400kg of wheat, how many kgs of wheat are delivered by 20 trucks?
10. 50 goats need 120 litres of water, how many litres of water are needed by 25 goats.
11. A plan of a house is drawn to a scale of 1cm: 2m. How long is the side which is 5cm on scale?
12. Use the map below to answer the questions which follow. Use the scale 1cm: 100m. What is the actual distance from:



a) Home to church b) home to school c)Church to gym
d) school to church e) Home to the gym

14. James, John and Jane shared 200 eggs in the ratio 2:3:5 respectively. How many eggs did John get?

15. Share 30 oranges between Grace and Conwell in the ratio 2:3 respectively, how many oranges will Conwell get?

16. A 20m plastic cover was cut in the ratio 2:3:5

a) What is the total ratio?

b) How long was the smallest cover?

c) How long was the biggest cover?

17.

(a) A car took 5hrs to cover 350km. calculate its speed in km/hr.								
	A	60km/hr	**B**	50km/hr	**C**	60km/hr	**D**	70km/hr
(b) Jabu cycled 12km in 2hrs. calculate his speed in km/hr								
	A	24km/hr	**B**	10km/hr	**C**	14km/hr	**D**	6km/hr
(c) A bus travelled 392km in 4hrs. calculate its speed in km/hr.								
	A	76km/hr	**B**	98km/hr	**C**	84km/hr	**D**	68km/hr
(d) A car took 45 minutes to cover 240km. what was its speed in km/hr.								
	A	200km/hr	**B**	350km/hr	**C**	90km/hr	**D**	150km/hr
(e) Taurai ran 200m in 20 seconds. Calculate his speed in m/s								
	A	10m/s	**B**	B 12m/s	**C**	C 15m/s	**D**	16m/s

18.

(a) A cyclist travelled from Masvingo to Ngundu at 150km/hr. if he took 3hrs for the journey calculate distance.								
	A	450km	**B**	100km	**C**	53km	**D**	96km
(b) A car travelling at 80km/hr took 3hrs to cover a certain distance. Calculate the distance.								
	A	450km	**B**	160km	**C**	240km	**D**	220km
(c) Travelling at 90km/hr a tractor took 3 ½ hrs to cover a certain distance. Calculate distance covered.								
	A	305km	**B**	315km	**C**	325km	**D**	400km
(d) Cycling at 140km/hr it took 30mins to cover a certain distance. What is the distance covered.								
	A	70km	**B**	100km	**C**	90km	**D**	75km

19)

a) A bus took 3hrs travelling at 60km/hr to cover a certain distance. What is the distance.

b) Tom took 2hrs to travel from Harare to Domboshava at 40km/hr. Calculate speed.

c) James took 4hrs to travel from Harare to Chirundu. He was travelling at 70km/hr. Calculate distance covered.

d) A bus took 1 ½ hrs to travel from Mvuma to Harare at 140km/hr. Calculate distance.

e) A bus travelling at 100km/hr took 1hr 15mins to cover a certain distance. Calculate distance.

20.

(a) How long does it take to cover 100km at 50km/hr.								
	A	1hr	**B**	2hrs	**C**	3hrs	**D**	4hrs
(b) How long does it take to cover 200km travelling at 50km/hr.								
	A	2hrs	**B**	3hrs	**C**	4hrs	**D**	5hrs
(c) How long does it take to cover 270km at 90km/hr.								
	A	3hrs	**B**	4hrs	**C**	5hrs	**D**	6hrs
(d) A bus covered 80km travelling at 160km/hr. Calculate time taken.								
	A	2hrs	**B**	½ hr	**C**	3hrs	**D**	4hrs
(e) A bus travelling at 90km/hr covered 60km. Calculate time taken.								
	A	2hrs	**B**	⅔hr	**C**	4hrs	**D**	3hrs

21)

a) How long does it take to cover 100km travelling at 20km/hr?

b) How long does it take to cover 180km travelling at 90km/hr?

c) A car covered 150km travelling at 40km/hr. Calculate time taken.

d) A car covered 90km travelling at 120km/hr. Calculate time taken.

e) Travelling at 150km/hr a car covered 100km. calculate time taken.

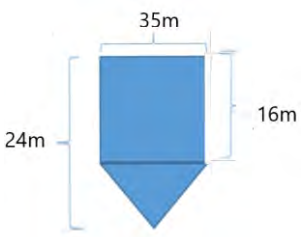
22. Answer the following

a) A vegetable bed measures 1.5mby 2m. Find its area in cm2.

b) A triangle has a base of 0.6m and a height of 8m. Calculate its area.

c) A newly resettled farmer Mr Mapika was given a plot which measures 120m by 150m. What is the area of his plot in hectacres?

23. Calculate the area of this shape.



24. Convert these areas into hectares:

a) 39 428 100m2

b) 9 256m2

UNIT 3 EXAM PRACTISE ANSWERS

UNIT 3.1 Exam Practise ANSWERS – DECIMAL NUMBERS TO 8 DIGITS, 3 DECIMALS

1. Thirty nine comma two six
2. 100+90+2+ 0/10+ 4/100
3. 12 303 210,21
4. 79,8 < 83,2
5. 473

UNIT 3.2 Exam Practise ANSWERS – PROPORTION, RATIO, SCALE

6. It will take 4 men 20 days to build the same fowl run,
7. Twenty cattle will fill a 100l container.
8. Twenty boxes will carry 100 books.
9. Twenty trucks can deliver 37 600kg of wheat (37.6 tons).
10. Twenty-five goas need 60 litres of water.
11. The 5cm side of the house in the plan represents, a 10m side of the actual house.
12.

(a)	700 m	(b)	600 m
(c)	400m	(d)	500 m
(e)	900 m		

14. John got 60 eggs. The distribution ration of 200 eggs is 40:60:100
15. Conwell received 18 oranges in a distribution of 12:18
16. a) 4:6:10 b) 4m c) 10m

UNIT 3.3 Exam Practise ANSWERS – LENGTH

None

UNIT 3.4 Exam Practise ANSWERS – RATE

17.

(a)	D	**(b)**	D	**(c)**	**B**	**(d)**	B	**(e)**	**A**

19.

(a)	A	**(b)**	C	**(c)**	B	**(d)**	A

20.

(a)	Distance = 180 km	**(b)**	40km/hr
(c)	280 km	**(d)**	210 km
(e)	125 km		

21.

(a)	B	**(b)**	C
(c)	A	**(d)**	B
(e)	B		

22.

(a)	5hrs	**(b)**	2 hr
(c)	3H45min	**(d)**	45 minutes
(e)	45 minutes		

UNIT 3.5 Exam Practise ANSWERS – AREA

23.

a) Area of bed = 1.5m x2m = 3m2 3m2 = 30 000cm2

b) Triangle A=2.4m2

c) A= 18 000m2 = 1.8 hectares

24. Area of rectangle = 35m x 16m = 560m2

Base of Triangle = 35m

Height of Triangle = 24m-16m = 8m

A = 140 m2

25. a) 3942.81 hectares

b) 0.9256 hectares

ANNEXES

My Weekly Schedule

Multiplication Table - 30x30

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	2	**4**	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
3	3	6	**9**	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90
4	4	8	12	**16**	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100	104	108	112	116	120
5	5	10	15	20	**25**	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
6	6	12	18	24	30	**36**	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150	156	162	168	174	180
7	7	14	21	28	35	42	**49**	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210
8	8	16	24	32	40	48	56	**64**	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240
9	9	18	27	36	45	54	63	72	**81**	90	99	108	117	126	135	144	153	162	171	180	189	198	207	216	225	234	243	252	261	270
10	10	20	30	40	50	60	70	80	90	**100**	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
11	11	22	33	44	55	66	77	88	99	110	**121**	132	143	154	165	176	187	198	209	220	231	242	253	264	275	286	297	308	319	330
12	12	24	36	48	60	72	84	96	108	120	132	**144**	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
13	13	26	39	52	65	78	91	104	117	130	143	156	**169**	182	195	208	221	234	247	260	273	286	299	312	325	338	351	364	377	390
14	14	28	42	56	70	84	98	112	126	140	154	168	182	**196**	210	224	238	252	266	280	294	308	322	336	350	364	378	392	406	420
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	**225**	240	255	270	285	300	315	330	345	360	375	390	405	420	435	450
16	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	**256**	272	288	304	320	336	352	368	384	400	416	432	448	464	480
17	17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	**289**	306	323	340	357	374	391	408	425	442	459	476	493	510
18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	**324**	342	360	378	396	414	432	450	468	486	504	522	540
19	19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	**361**	380	399	418	437	456	475	494	513	532	551	570
20	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	**400**	420	440	460	480	500	520	540	560	580	600
21	21	42	63	84	105	126	147	168	189	210	231	252	273	294	315	336	357	378	399	420	**441**	462	483	504	525	546	567	588	609	630
22	22	44	66	88	110	132	154	176	198	220	242	264	286	308	330	352	374	396	418	440	462	**484**	506	528	550	572	594	616	638	660
23	23	46	69	92	115	138	161	184	207	230	253	276	299	322	345	368	391	414	437	460	483	506	**529**	552	575	598	621	644	667	690
24	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480	504	528	552	**576**	600	624	648	672	696	720
25	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	**625**	650	675	700	725	750
26	26	52	78	104	130	156	182	208	234	260	286	312	338	364	390	416	442	468	494	520	546	572	598	624	650	**676**	702	728	754	780
27	27	54	81	108	135	162	189	216	243	270	297	324	351	378	405	432	459	486	513	540	567	594	621	648	675	702	**729**	756	783	810
28	28	56	84	112	140	168	196	224	252	280	308	336	364	392	420	448	476	504	532	560	588	616	644	672	700	728	756	**784**	812	840
29	29	58	87	116	145	174	203	232	261	290	319	348	377	406	435	464	493	522	551	580	609	638	667	696	725	754	783	812	**841**	870
30	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	630	660	690	720	750	780	810	840	870	**900**

Date _____ Name _____

PERCENT, DECIMAL & FRACTION CONVERSIONS

PERCENT ⬇ DECIMAL	Move the decimal point two places to the left. (divide by 100)	48% → 0.48
DECIMAL ⬇ PERCENT	Move the decimal point two places to the right. (multiply by 100)	0.3 → 30%
PERCENT ⬇ FRACTION	1. Put the percent over 100 and drop % sign. 2. Reduce the fraction to simplest form.	8%, $\frac{8 \div 4}{100 \div 4}$, $\frac{2}{25}$
Option 1 **FRACTION ⬇ PERCENT**	1. Multiply to get a denominator of 100. (Multiply the numerator and the denominator by the same number) 2. Then, the new numerator is the %.	$\frac{1}{5}$, $\frac{1 \times 20}{5 \times 20} = \frac{20}{100}$, 20%
Option 2	1. Divide the numerator by the denominator. 2. Change the decimal to a percent. (Move decimal point 2 places to the right)	$\frac{1}{5}$, $5\overline{)1.0}$ = 0.20, 20%
FRACTION ⬇ DECIMAL	Divide the numerator by the denominator to get a decimal.	$\frac{2}{3}$, $3\overline{)2.0}$ = $0.\overline{6}$
DECIMAL ⬇ FRACTION	1. Use the place value of the decimal to write the denominator of the fraction. Example: tenths = 10, hundredths = 100, etc. 2. The numbers to the right of the decimal point are the numerator. 3. Reduce the fraction to simplest form.	0.06, $\frac{6 \div 2}{100 \div 2}$, $\frac{3}{50}$

Types of Numbers – Cheat Sheet

Prime Number – A number that has exactly two (2) factors

- Zero (0) and One (1) are neither prime nor composite because they only have one factor (itself)

Composite Number – A number that has three (3) or more factors

Prime Number Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Even Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Even Numbers end in

Odd Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Odd Numbers end in

Even

- Numbers ending in 0, 2, 4, 6, 8

Odd

- Numbers ending in 1, 3, 5, 7, or 9

7

FACE MASK
USE IN COVID-19 PREVENTION

When alone at home or anywhere you can take off your face mask

Taking off & disposing of a face mask

Remove the used mask by handling only the ear loops/straps.

Fold corners of the used mask together and make sure contaminated parts faces inwards

Put the used mask in a plastic bag and throw it in a bin or bucket

Wash our hands with soap and running water after disposing of a used mask.

Remember

Don't put your mask on your chin or on forehead

Don't touch the front covering of the mask and if you do wash or sanitize your hands immediately

Always keep your mask ON the entire time you are in public

Please be aware that children under 2 years should not wear masks as they may suffocate

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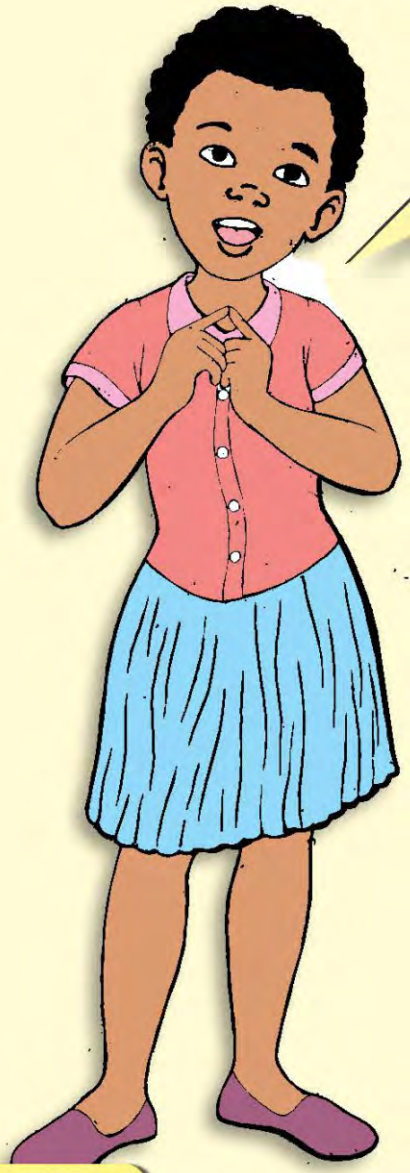
FACE MASK
USE IN COVID-19 PREVENTION



In this COVID-19 pandemic, there are correct and consistent ways to use face masks, we have to observe in addition to social distancing, hand washing, hand sanitizing and coughing & sneezing into a flexed elbow to prevent disease spread.

How to wear a face mask correctly

Wash hands before putting the mask on.

Make sure your mask is clean and is not used by anyone. Make sure you hold by the straps only.

Put the mask over your nose and mouth and secure it under your chin.

Try to fit the mask snugly against the sides of your face making sure you can breathe easily.

Remember

Don't put your mask on your chin or on forehead

Don't touch the front covering of the mask and if you do wash or sanitize your hands immediately

Always keep your mask ON the entire time you are in public

Please be aware that children under 2 years should not wear masks as they may suffocate

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