P.6 MATHEMATICS LESSON NOTES

TERM TWO

THEME: NUMERACY

TOPIC: FRACTIONS

OPERATIONS OF FRACTIONS

Week 3 lesson 1 and 2

Addition and subtraction of fractions

Add $2\frac{2}{3}+1\frac{1}{4}$

Method 1.

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

$3+\frac{8+3}{12}=$

$3+\frac{11}{12}$

$3\frac{11}{12}$

Method 2

$2\frac{2}{3}+1\frac{1}{4}=\frac{8}{3}+\frac{5}{4}$ *LCD = 12*

$\frac{32+15}{12}$

$\frac{47}{12}$

$3\frac{11}{12}$

SW

$$\begin{array}{r} 3 \\ 12\overline{)47} \\ \underline{-36} \\ 11 \end{array}$$

Subtract

$3\frac{4}{5}-2\frac{1}{3}$

$\frac{19}{5} - \frac{7}{3}$ $LCD = 15$

$\frac{57-35}{15}$

$\frac{22}{15}$

$1\frac{7}{15}$

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MULTIPLICATION OF FRACTIONS

Week 3 Lesson 2

Multiplication of simple fractions by whole numbers.

$\frac{1}{3}$ *Of* 12

$\frac{1}{3} \times \cancel{12}$

$1 \times 4 =$

4

ii. $20 \times \frac{3}{5}$

$20 \times \frac{3}{\cancel{5}}$

4×3

$=12$

Multiplication of simple fractions by simple fraction.

$\frac{2}{3} \times \frac{4}{5}$ $\frac{n \times n}{d \times d}$

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

$\frac{8}{15}$

ii. $\frac{2}{9} \times \frac{4}{10}$

$\frac{\cancel{2}\times 4}{9\times\cancel{10}}$

$\frac{1\times 4}{9\times 2} = \frac{4}{18}$

$\frac{2}{9}$

Multiplication of mixed fractions

$2\frac{1}{4} \times 1\frac{2}{3}$

$\frac{\cancel{9}}{4} \times \frac{5}{3}$

$\frac{3\times 5}{4\times 1}$

$\frac{15}{4}$ $\frac{\sqrt[4]{\overline{15}}^{3}}{3}$

$3\frac{3}{4}$

ii. $6\frac{2}{7}\ of\ 2\frac{1}{5}$

$\frac{44}{7} \times \frac{11}{5}$

$\frac{44\times 11}{7\times 5}$

$\frac{484}{35}$ $\begin{array}{r} 13 \\ 35\overline{)484} \\ 134 \\ \underline{-105} \\ 29 \end{array}$

$13\frac{29}{35}$

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DIVISION OF FRACTIONS

Week 3 lesson 4

Division of fractions by whole number.

i. Divide $\frac{2}{3}$ by 4

$\frac{2}{3} \div 4$

$\frac{2}{3} \times \frac{1}{4}$

$\frac{1\times1}{3\times2} = \frac{1}{6}$

Method 2 using LCM

$\frac{2}{3} \div \frac{4}{1}$ $\quad LCM = 3$

$\frac{2}{3} \times 3 \div \frac{4}{1} \times 3$

$\frac{2}{1} \div \frac{12}{1}$

$\frac{2}{12} = \frac{1}{6}$

Division of a whole number by a fraction.

How many half kilogram packets are 6kgs?

$6 \div \frac{1}{2}$

$\frac{6}{1} \times \frac{2}{1}$

$\frac{6\times2}{1\times1} = 12$

OR

$\frac{6}{1} \div \frac{1}{2}$ $\quad LCM = 2$

$(6\times2) \div \frac{1}{2} \times 2$

$12 \div 1$

= 12 Half Kg Packets.

Division of fractions by fractions.

Divide

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

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

$\frac{1 \times 5}{3 \times 2}$

$\frac{5}{6}$

Or using LCM

$\frac{2}{3} \div \frac{4}{5} \qquad LCM = 15$

$\left(\frac{2}{3} \times 15\right) \div \left(\frac{4}{5} \times 15\right)$

2×5÷4×3

10÷12

$\frac{10}{12} = \frac{5}{6}$

ii) $3\frac{1}{3} \div 2\frac{1}{2}$

$\frac{10}{3} \div {}^{5}/_{2}$

$\frac{10}{3} \times \frac{2}{5}$

$\frac{2 \times 2}{3}$

$\frac{4}{3}$ $\qquad\qquad$ $3\overline{)4}\ 1$, -3, 1

$1\frac{1}{3}$

OR using LCM

$3\frac{1}{3} \div 2\frac{1}{2}$ $\quad LCM = 6$

$\frac{10}{3} \div \frac{5}{2}$

$\left(\frac{10}{3} \times 6\right) \div \left(\frac{5}{2} \times 6\right)$

$20 \div 15$

$\frac{\cancel{20}}{\cancel{15}} = \frac{4}{3}$ $\quad \begin{array}{r} 1 \\ 3\sqrt{4} \\ \underline{-3} \\ 1 \end{array}$

$= 1\frac{1}{3}$

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Mixed operation on fractions (Application of BODMAS)

Week 3 lesson 5 and 6

BODMAS – Brackets of Division, Multiplication, Addition, Subtraction.

Simplify

$\frac{2}{3} - \frac{1}{3} \times \frac{3}{5}\ of\ \frac{1}{3} \div \frac{1}{4}$

BODMAS

$\frac{2}{3} - \frac{1}{3} \times \left(\frac{3}{5} \times \frac{1}{3}\right) \div \frac{1}{4}$

$\frac{2}{3} - \frac{1}{2} \times \frac{1}{5} \div \frac{1}{4}$

$\frac{2}{3} - \frac{1}{2} \times \frac{1}{5} \times \frac{4}{1}$

$\frac{2}{3} - \frac{1}{2} \times \frac{4}{5}$

$\frac{2}{3} - \left(\frac{1}{2} \times \frac{4}{5}\right)$

$\frac{2}{3} - \frac{2}{5} \qquad LCM = 15$

$\frac{10-6}{15} = \frac{4}{15}$

Supplementary MTC pg

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Word problems (application of fractions)

Week 4 lesson 1

$\frac{2}{3}$ *of a number is* 40. *find the numbers*

Soln:

let the number be x

$\frac{2}{3} \times x = 40$

$3\frac{2x}{3} = 40 \times 3$

$\frac{2x}{2} = \frac{120}{2}$

$x = 60$

2. In a class $\frac{2}{5}$ of the pupils are girls. If there are 60 boys in a class. How many girls pupils are in the class?

Let the total No of pupils be x

Fraction for boys

$1 - \frac{2}{5}$

$\frac{5}{2} - \frac{2}{5} = \frac{3}{5}$

$\frac{3}{5} \times x = 60$

$5 \times \frac{3x}{5} = 60 \times 5$

$\frac{3x}{3} = \frac{60 \times 5}{3}$

$x = 20 \times 5$

$x = 100$

3. ¼ of my salary is sh.15, 000. What is my salary?

Let my salary be m

$\frac{1}{4}\ of\ m = shs\ 15{,}000$

$\frac{1}{4} \times m = shs\ 15{,}000$

$4 \times \frac{m}{4} = shs\ 15{,}000 \times 4$

$m = shs\ 60{,}000$

b).What is $\frac{2}{3}$ of my salary?

$\frac{2}{3} \times 60{,}000$

$2 \times 20{,}000$

= Shs 40,000

5. A pupil spent $\frac{1}{6}$ of the pocket money on soda and $\frac{1}{4}$ of the remainder on transport and was left with shs 36,000. How much money did the pupil have at first?

DECIMALS

Converting fractions to decimals

Week 4 lesson 2

i).Express $\frac{1}{2}$ as a decimal.

$\frac{1}{2} =$

$$2\overline{)\begin{array}{r}0.5\\10\\-10\end{array}}$$

$o.5$

(ii) express $\frac{3}{4}$ as a decimal

$$\frac{3}{4} = 4\overline{)\begin{array}{r}0.75\\3\\-0\\30\\-28\\\hline 20\\-20\end{array}}$$

= 0.75

iii) Express $\frac{1}{3}$ as a decimal

$$\frac{1}{3} = 3\overline{)\begin{array}{r}0.333\\1\\-0\\10\\-9\\\hline 10\\-9\end{array}}$$

=- 0.33……. or 0.3

Converting decimals into mixed fractions.

i)Change 0.4 into a common fraction.

$0.4 = \frac{4}{10}$

$\frac{4\div 2}{10\div 2} = \frac{2}{5}$

ii)Change 0.025 into a common fraction

$0.025 = \frac{\cancel{25}^{\cancel{5}^{1}}}{\cancel{1000}_{\cancel{200}_{40}}} = \frac{1}{40}$

OPERATION OF DECIMALS

Week 4lesson 3

Addition and subtraction of decimals.

i)Add 8.6 +0.9

$$\begin{array}{r} 8.6 \\ +0.9 \\ \hline 9.5 \end{array}$$

ii)Subtract 0.46 from 2

$$\begin{array}{r} 2.00 \\ 0.46 \\ \hline 1.54 \end{array}$$

iii)Work out: 5.8 – 2.44+1.6

(5.8+1.6)-2.44

7.4 – 2.44

$$\begin{array}{r} 7.40 \\ -2.44 \\ \hline 5.96 \end{array}$$

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MULTIPLICATION OF DECIMALS

Week 4 lesson 4

a. Multiplying a decimal by 10, 100 and 1000

Example:

i. 0.23×10

$\frac{23}{100} \times 10$

$\frac{23}{10} = 2.3$

ii. 0.761×100

$\frac{761}{1000} \times 100$

$\frac{671}{10} = 76.1$

iii. 0.467×1000

$\frac{467}{\cancel{1000}} \times \cancel{1000}$

$= 467$

a. Multiply a decimal by a whole number

i. Example:

0.32×4	or	0.32×4
0.32		$\frac{32}{100} \times 4$
× 4		$\frac{32}{100} \times 4 = \frac{128}{100}$
1.28		1.28

ii. 3.75×18 or 3.75×18

375^{OR}
$\times 18$
3000
$+375$
67.50
67.50

$\frac{375}{100} \times 18$

$\frac{6750}{100} = 67.5$

Multiplying a decimal by a decimal

1. Simplify 0.7×0.5

Method

0.7×0.5

$\frac{7}{10} \times \frac{5}{10} = \frac{7 \times 5}{10 \times 10}$

$\frac{35}{100}$ = 0.35

Method 2

0.7×0.5

7×5

.35

0.35

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DIVISION OF DECIMALS

Week 4 lesson 5

Division of whole numbers by decimals.

Example

a. 8÷0.2

$8 \div \frac{2}{10}$

$8 \times \frac{10}{2}$

4×10

40

b. Divide 24÷0.03

$24 \div \frac{3}{100}$

8×100

800

Division of decimals by a whole number.

a)Divide 1.2÷0.6

$\frac{12}{10} \times \frac{6}{10}$

$\frac{\cancel{12}^{2}}{\cancel{10}} \times \frac{10}{6} = 2$

b)Divide 0.036÷0.4

$\frac{36}{100} \div \frac{4}{10}$

$\frac{36}{1000} \times \frac{10}{4}$

$\frac{9}{100}$

0.09

Multiplication and division of decimals

a) Simplify

$$\frac{0.24\times0.3}{0.8}$$

$$\left(\frac{24}{100}\times\frac{3}{10}\right)\div\left({}^{8}/_{10}\right)$$

$$\frac{24}{100}\times\frac{3}{10}\times\frac{10}{8}$$

$$\frac{3\times3\times1}{100\times1}$$

$$\frac{9}{100} \quad = \quad 0.09$$

b) Work out:

$$\frac{0.9\times0.14}{0.2\times0.3}$$

$$\frac{9}{10}\times\frac{14}{100}\div\left(\frac{2}{10}\times\frac{3}{10}\right)$$

$$\frac{\cancel{9}^{3}}{10}\times\frac{\cancel{14}^{7}}{100}\times\frac{10}{2}\times\frac{10}{3}$$

$$\frac{3\times7}{10}$$

2.1

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Changing recurring decimals into common fractions. (Week 5 lesson 1and 2)

i)Change 0.33….. to a common fraction

Solution:

Let the fraction be x

$x = 0.33 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$

Multiply each side by 10 since one digit is recurring

$x \times 10 = 0.33 \ldots\ldots\ldots . . \times 10$

$10x = 3.33 \ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$

Subtract (i) from (ii)

$$\begin{array}{l} 10x = 3.33\ldots\ldots \\ \underline{-x = 0.33\ldots\ldots} \\ \frac{9x}{9} = \frac{3}{9} \end{array}$$

$x = \frac{3}{9}$

$x = \frac{1}{3}$

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RATIOS AND PROPORTIONS (Week 5 lesson 3)

Ratio is the comparison between two or more quantities of the same units.

EXPRESSING RATIONS AS FRACTIONS.

i) Express 1:2 as a fraction

$1:2 = \frac{1}{2}$

ii) Express 5:3 as a fraction

$5:3 = \frac{5}{3}$

EXPRESSING FRACTIONS AS A RATIO

Express $\frac{1}{2}$ as a fraction

$\frac{1}{2} = 1:2$

Express $\frac{6}{5}$ as a ratio

$\frac{6}{5} = 6:5$

Week 5 lesson 4

EXPRESSING QUANTITIES AS RATIOS (***Note: Ratios are expressed without units***)

(i) Henry has 12 books and John has 20 books. What is the ratio of Henry's books to John's books?

12: 20

$\frac{12}{20} = \frac{3}{5}$

3:5

(ii) Express 20 minutes as a ratio of 1 hour.

1 hour = 60 minutes

20 min: 60 min

$\frac{20}{60}$ = 2/6

1:3

NB Ratios that are to compare two quantities must be expressed to the lowest term and must be of the same units.

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SHARING IN RATIOS. Week 5 lesson 5

1. Divide sh 120 in a ration of 1:4

Total share 1 + 4 = 5 parts.

1st share: $^1/_5$ x 120 = sh. 24

2nd share $^4/_5$x sh 120 = 4 x 24 = 96

Method 2

Total share 1 +4 = 5 parts

5 parts rep shs 120

1 part rep sh. $\frac{120}{5}$

Sh. 24

4 parts

4 parts rep $\frac{120}{5} \times 24$

24×4

sh.96

2.John and Diana shared sh. 3000 in a ratio of 2:3 respectively. How much did each get?

John	:	Diana	or	john	:	Diana
2	:	3		2	:	3

Total ratio 2+3 =5

John's share

$\frac{2}{5} \times shs\ \cancel{3000}^{600}$

Shs 1200

Diana's share

total ratio. 2+3 = 5

5 parts rep sh. 3000

1 part rep sh. $\frac{\cancel{3000}^{600}}{5}$

1 part rep. sh.600

John's share

2 parts

Diana's share

3 parts

$\frac{3}{5} \times shs\ \cancel{3000}^{600}$ 2×600 3×shs600

Shs 1800 shs 1200 shs 1800

INCREASE AND DECREASE IN RATIOS (week 5 lesson 6)

Example

1. Increase 200/= in the ratio of 5:4

New: Old or New: old

5: 4 5:4

? 200 $\frac{New}{Old} \times Quantity$

4 parts rep 200/= $\frac{5}{4} \times shs\ \cancel{200}^{50}$

1 part reps $\frac{200/=}{4}$ 5×shs 50

50/= sh. 250

5 parts rep 5×50/=

Sh. 250

Decrease 400 in a ratio of 3:4

New: old or new: old

3: 4 3:4

? 400 $\frac{new}{old} \times Quantity$

4 parts rep 400 $\frac{3}{4} \times 400^{100}$

1 part rep $\frac{400}{4}$ 3×100

100 300

3 parts rep $\frac{400}{4} \times 3$

100×3

300

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SOLVING PROBLEMS INVOLVING RATIOS (week 6 lesson 1 and 2)

1.Dan and Mike shared some money in the ratio of 3:5 respectively. If Mike got sh.3000,

a) How much did Dan get?

Dan : Mike

3 : 5

? 3000/=

5 parts rep. 3000/=

1 part reps $\frac{3000}{5}$

3 parts rep $\frac{3000^{600}}{5} \times 3$

Shs 600×3

Shs 1800

Dan got shs 1800

Dan : Mike

3 : 5

Total ratio 3+5 = 8

let total share by y

$\frac{5}{8} \times y = shs\ 3000 \times 8$

$8 \times \frac{5y}{8} = \frac{shs\ 3000^{600} \times 8}{5}$

$y = 4800/=$

Dan's share $= \frac{3}{8} \times \cancel{4800}^{600}/=$

3×600/=

1800/=

2. A and B shares a sum of money in a ratio of 3:4. If A gets shs 12000, how much money is shared?

A : B

3 : 4

12000/=

Total No of parts (total ratio)

3+4 = 7

3 parts rep shs 12000

1 part rep shs $\frac{12000^{4000}}{3}$

7 parts rep 4000×7

= 28000/=

or

A : B

3 : 4

Total ratio 3+4 = 7

let the total amount be y

$\frac{3}{7} \times y = shs\ 12000$

$7 \times \frac{3y}{7} = shs\ 12000 \times 7$

3y = shs 12000×7

$\frac{3y}{3} = shs\ \frac{12000^{4000}}{3} \times 7$

y = 28,000/=

3. A, B and C shared a certain sum of money in the ratio of 2:3:5 respectively. If C got sh.1500 more than A. how much money is shared?

A: B: C

2:3:5

Total ratio

2+3+5 = 10

Difference in ratio

5-2 = 3

3 parts rep 1500/=

1 part reps $\frac{1500/=}{3}$

10 parts rep $\frac{\cancel{1500}^{500}}{\cancel{3}} \times 10$

500×10

5000/=

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PROPORTIONS (week 6 lesson 3 and 4)

NB: In proportions, the required quantity is always on the right hand side.

Example:

1. 2 books cost sh. 200, what is the cost of 6 books

Books		cost
2 books	cost	200/=
1 book	costs	$\frac{200/=}{2}$
6 books	costs	sh.100×6
		Sh.600

2. 6 books cost sh.1200. How many books can 1 buy with sh. 600?

Cost		books
Shs 200	buys	6 books
1 shs	buys	$\frac{6\ books}{1200}$
Shs 600	buys	$\frac{\cancel{6}^{3}}{\cancel{1200}_{2}} \times \cancel{600}$
		3 books

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INDIRECT (INVERSE PROPORTIONS)

Example:

1. 4 girls take 9 days to do a job. How long will 12 girls take to do the job at the same rate?

Girls	Days
4 girls take	9 days
1 girl takes	9×4
12 girls take	$\frac{9\times4}{12}$ = 3×1
	3

2. 12 men can build a classroom in 5 days. How many men are needed to do the whole job in 2 days?

Day's		men
5 days	need	12 men
1 day	needs	12×5 men
2 days	need	$\frac{12\times5}{2}$
		6×5
		30 men

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PERCENTAGES (week 6 lesson 5)

Percent means out of 100.

Percent means every 100

Percent means per 100

Symbol for percentage %

EXPRESSING PERCENTAGES FRACTIONS

i. Express 60% as a fraction

$$60\% = \frac{60}{100}$$

$$\frac{6\div2}{10\div2} = \frac{3}{5}$$

ii. Express 13% as a fraction

$$13\% = \frac{13}{100}$$

iii. Change 12½% as a percentage

$$= 12\frac{1}{2}\% = \frac{25\%}{2}$$

$$\frac{25\%}{2} \div 100$$

$$\frac{25}{2} \times \frac{1}{100}$$

$$\frac{25}{200} = \frac{1}{8}$$

EXPRESSING PERCENTAGE TO DECIMALS

1. Change 40% into a decimal

$$40\% = \frac{40}{100}$$

0.4

2. Convert 35% into a decimal

$35\% = \frac{35}{100}$

0.35

3. Convert $12\frac{1}{2}\%$ into a decimal

$12\frac{1}{2}\% = \frac{25}{2}\%$

$= \frac{25}{2} \div 100$

$\frac{25}{2} \times \frac{1}{100}$

$= \frac{25}{2}$

$$\begin{array}{r} 0.125 \\ 8\overline{)10} \\ -8 \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline \end{array}$$

0.125

EXPRESSING PERCENTAGES AS A DECIMALS RATIOS

i) Convert 40% as a ratio

$40\% = \frac{40}{100} = \frac{2}{5}$

2:5

ii) Convert 29% as a ratio

$29\% = \frac{29}{100}$

= 29:100

iii) Change $12\frac{1}{2}\%$ as a ratio

$12\frac{1}{2}\% = \frac{25}{2}\%$

$\frac{25}{2} \div 100$

$\frac{25^{1}}{2} \times \frac{1}{100_{4}}$

$\frac{1}{8}$ **= 1:8**

EXPRESSING FRACTIONS AS A PERCENTAGES (week 6 lesson 6)

i. Convert $\frac{1}{2}$ as a percentage

$\frac{1}{2} = \frac{1}{2} \times 100^{50}\%$

50%

ii. Convert $\frac{1}{3}$ into a percentage

$\frac{1}{3} \times 100\% = \frac{100}{3}\%$

Convert $\frac{1}{3}$ into a percentage.

$\frac{1}{3} \times 100\% = \frac{100\%}{3}$

$$\begin{array}{r} 33 \\ 3\overline{)100} \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 1 \end{array}$$

= $33\frac{1}{3}\%$

EXPRESSING DECIMALS AS PERCENTAGES

i) Convert 0.04 as a percentage

0.04 = $\frac{4}{100} \times 100\%$

= 4%

ii)Change 1.2 into a percentage

1.2 = $\frac{12}{10} \times 100\%$

= 120%

EXPRESSING RATIOS AS PERCENTAGES

1. Change 2:5 into a percentage

2:5 = $\frac{2}{5} \times 100\%$

= 2× 20%

= 40%

2. Change 2:7 into a percentage

2:7 = $\frac{2}{7} \times 100\%$

= $\frac{200\%}{7}$

= $28\frac{4}{7}$

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PARTS OF PERCENTAGE. (Week 7 lesson 1)

N.B total percentage is 100%

Examples

1. In a class 40% are boys and the rest are girls. Find the percentage for girls.

Total percentage = 100%

% for = 40%

% for girls = 100% - 40%

= 60%

2. In the school library 40% 0f the books are science text books, 20% are math, 5 % are SST and the rest are English text books.

Find the percentage of English text books

Total percentage = 100%

Total percentage of math, science, SST text books =

40% + 20%+ 5%

= 65%

Percentage of English text books = 100% - 65%

=35%

3. Musisi Covered 30% of his journey by car and 50% by bus.

What percentage of the journey was left?

Entire journey = 100%

Musisi traveled = 30%+50%)

= 80%

Percentage left= 100% - 80%

= 20%

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COMPARING QUANTITIES USING PERCENTAGES

1. There are 20% more boys than girls in the class. What is the percentage of

a) Boys b) girls

Total percentage = 100%

Let the girls' percentage be x%

Girls	boys	total
X%	x+20%	= 100%

X% + % + 20% = 100%

2x% + 20% = 100%

2x% + 20%-20% = 100%- 20%

$\frac{2x}{2}$ = $\frac{80\%}{2}$

X% = 40%

Percentage of girls = 40%

Percentage for boys = x% + 20%

= 40% + 20%

= 60%

2. A family spent 40% more on school fees than clothing. What percentage is spent on clothing?

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EXPRESSING QUANTITIES AS PERCENTAGES (week 7 lesson 2 and 3)

Express 20 as a percentage of 80

$\frac{20}{80}$ ×100%

1×25%

= 25%

2. A bag contains 18 blue pens and 32 red pens.

What is the percentage of the blue pens and the red pens?

Total no. of pens = 18+ 32–

= 50

% of red pens = $\frac{32}{50}$ ×100%

= 32 ×2%

= 64%

3. Express 200grams as a percentage of 2kg

1kg = 1000gm

2kg = 2 ×1000gm

= 2000gm

$\frac{200gm}{2000gm}$ ×100%

= 10%

MK primary MTC Bk 6 pg

Understanding MTC Bk 6 pg functional primary MTC bk 6 pg

FINDING PERCENTAGE PARTS OF QUANTITIES (week 7 lesson 4)

Example

1. Find 40% of 150

$\frac{40}{100}$ × 150

4×15

60

20% of 1kg

1kg = 1000kg

= $\frac{20}{100}$ × 1000gm

= 200gm

2. A piece of land is 200 hectares. A farmer used 60% of it to cultivate. How much land is used for cultivation?

60% of 200 hectares

$\frac{60}{100}$ × 200hectares

120 hectares

3. What is $12\frac{1}{2}$% of 800kg

$\frac{12\frac{1}{2}}{100}$ × 800kg

$12\frac{1}{2} \times 8kg$

$\frac{25}{2} \times 8$ = 25×4

100Kg

MK primary MTC bk 6 pg 146

Understanding MTC bk 6 pg 118

Functioning primary MTC bk 6 pg 107

MORE ABOUT PERCENTAGE PART OF QUANTITIES.

1. A school has 800 pupils 45% are girls and the rest are boys.

a) How many girls are in the school?

% for girls = 45%

No. of girls = $\frac{45}{100} \times 800$

= 45×8

= 360 pupils

b) How many boys are in the class?

Method 1

Total no. of pupils = 800

No. of girls = 360

No. of boys = 800 - 360

440boys

method 2

total percentage = 100%

% for girls = 45%

% for boys = 100% - 45%

= 55%

= $\frac{55}{100} \times 800$

No. of boys = 440

2. In a class, 10% of the pupils are absent. How many pupils are present if there are 60 pupils?

No. of pupils absent = $\frac{10}{100}$ ×60 pupils

= 6 pupils

No. of pupils present = 60-6

= 54 pupils

MK primary mathematics Bk 6 pg

MORE PROBLEMS INVOLVING PERCENTAGES. (WEEK 7 LESSON 5 and 6)

1. If 10% 0f a number is 40. What is the number?

Let the no. be x

10% of x = 40 10% rep 40

$\frac{10}{100}$ × x = 40 1% rep $\frac{40}{10}$

100× $\frac{10x}{100}$ = 40× 100 100% rep $\frac{40}{10}$ × 100

$\frac{10x}{10}$ = $\frac{4000}{10}$ 400

X = 400

2. 20% of the pupils in a school are girls. There are 35 girls in the school. How many pupils are there in the school?

Let the no. of pupils be y

20% of y = 35 20% rep 35pupils

$\frac{20}{100}$ × y = 35 1% rep $\frac{35}{20}$

100× $\frac{20y}{100}$ = 35× 100 100% rep $\frac{35}{20}$ × 100

$\frac{20y}{20}$ = $\frac{3500}{20}$ 35 ×5

y	=	175pupils	175 pupils

PERCENTAGE INCREASE (week 8 lesson 1)

Increase means to add on.

1. Increase sh 800 by 20%

Original	+	increment	new percentage
Sh 800	+	(20% of sh 800)	100% +20% = 120%
Sh 800	+	$\frac{20}{100}$ ×800	120 % of the original
Sh 800	+	160	$\frac{120}{100}$× 800
Sh 960			120 ×8 sh
			Sh 960

2. Increase 400 by 15%

Sh 400 of 4000	+	(15% of sh400)	(100% +15%)
Sh400	+	$\frac{15}{100}$ ×400	115 % of 400
Sh400	+ 60		$\frac{115}{100}$× 400
Sh 460			115 ×4 sh
			Sh 460

3. A shirt used to cost 10,000 shilling. This price increased by 5%. Calculate the new price of the shirt

MK primary MTC BK 6 pg 153

Understanding MTC Bk 6 pg 121

Functioning primary MTC Bk 6 pg 110

Primary MTC for Uganda Bk 6 pg 58

PERCENTAGE DECREASE (Week 8 lesson2)

Decrease means to reduce, subtract, deduct

1. Decrease 300 by 10 %

300	-	(10% of 300)	100% - 10% of 300
300	-	$\frac{10}{100} \times 300$	$\frac{90}{100} \times 300$
300	-	30	90 ×3
270			270

2. Decrease sh 1500 by 20%

100% - 20% of sh 1500

$\frac{80}{100} \times$ sh1500

80 ×15

Sh 1200

3. The number of pupils decreased by 15%. How many pupils are in the school if they were 1600 pupils?

4. Reduce 1800kg by 40%

MK primary MTC Bk pg 155, Understanding MTC bk 6 pg 121

PERCENTAGE PROFIT / GAIN (week 8 lesson3)

Profit = selling price – buying price (Cost price)

Percentage $= \frac{profit}{cost\ price} \times 100\%$

Example.

1. An article was bought at sh 100,000 and sold at sh 120,000. Calculate the percentage profit

Profit = S.P – B.P

= sh 120,000 -100,000

= sh 20.000

Percentage profit = $\frac{sh\ 20,000}{sh100,000} \times 100\%$

= 20%

2. The gain from the sales of certain items is sh 6000. The items were bought at sh 48,000

Calculate the percentage gain

Percentage gain = $\frac{gain}{B.P} \times 100\%$

= $\frac{sh\ 6000}{sh48000} \times 100\%$

$$\begin{array}{r} 12 \\ 4\sqrt{50} \\ \underline{-4} \\ 10 \\ \underline{-8} \\ 2 \end{array}$$

= $\frac{600\%}{48}$

= $\frac{50}{4}$

= $12\frac{2}{4}\%$

3. A book was bought at sh 800 and was sold at sh 900. Calculate the percentage profit.

Profit = selling price – buying price

Sh 900 – sh 800

Sh100

Find the percentage profit made

% percentage = $\frac{profit}{B.P} \times 100\%$

= $\frac{sh\ 100}{sh\ 800} \times 100\%$

$$\begin{array}{r} 12 \\ 2\sqrt{25} \\ \underline{-2} \\ 5 \\ \underline{-4} \\ 1 \end{array}$$

= $\frac{25}{2}$

$= \quad 12\frac{1}{2}$

PERCENTAGE LOSS (week 8 lesson 4)

The following words can also be used to mean decrease or loss. They are discount and reduction.

Loss = buying price – selling price.

Percentage loss = $\frac{loss}{B.P} \times 100\%$

1. Juman bought a book at shs 400 and sold it at shs 300

a) Calculate the loss he made.

Loss = buying price - selling price

= Shs 400 - shs 300

= Shs 100

b) Find the percentage loss he made.

% loss= $\frac{loss}{B.P} \times 100\%$

= $\frac{100}{400} \times 100\%$

= $\frac{100\%}{4}$

= 25%

2. A trader bought an item at sh 5000, on selling it he made a loss of sh 2000. Calculate the percentage loss he made

Percentage loss = $\frac{loss}{B.P} \times 100\%$

= $\frac{2000}{5000} \times 100\%$

= $\frac{200}{5}$

= 40%

MORE ABOUT PERCENTAGE PROFIT AND LOSS

1. A trader bought a radio at shs 20000 and on selling it he made a profit of 30%. How much did he sell the radio?

Method 1 OR = 100% + 30%

Profit made = 130%

%profit = 30% = 130% of B.P

Profit = 30% of B.P = $\frac{130}{100}$ × 20000

= $\frac{30}{100}$× 20000

= sh200 × 130

= shs 6000 = sh 26000

Selling price = B.P + profit

= sh 2000+sh 6000

= sh 26000

2. On selling an article a trader made a loss of 10%. If he bought the article at sh 20000

a) How much was the loss?

% loss = 10%

Loss = 10% of B.P

= $\frac{10}{100}$× 20000

= sh 2000

b) Calculate the selling price of the article

S.P = B.P – loss

= sh 20000 – 2000

= sh 18000

OR S.P = B.P - loss

= 100%-10%

= 90%

= $\frac{9}{10}$× 20000

= sh 18000

Understanding MTC book 6 page 124
Primary MTC for Uganda book 6 page 75

SIMPLE INTEREST (week 8 lesson 5)

N.B the money banked, borrowed or lent is the principal (p)

The percentage used to calculate interest is the rate (R)

The period in a year that the principal is invested is the time (T)

Simple interest = principal × Rate × Time

S.I = P × R × T

N.B always the rate is in percentages

Amount = principal + interest.

Example:

1. A farmer deposited sh 120,000 in a bank that offers an interest rate of 10% per year. How much interest will the farmer get in 2 years?

Interest = P × R × T

= sh 120,000 × 10%× 2

= sh 120,000× $\frac{10}{100}$× 2

= sh 24,000

2. A trader borrowed sh 400,000 from a bank at an interest rate of 5% per annum.

a) How much interest must he pay after 6 months?

I = P × R × T

= sh 400,000× 5% × $\frac{6}{12}$yrs

= sh 400,000× $\frac{5}{100}$× $\frac{6}{12}$ yrs

= sh 2000× 5

= sh 10,000

B) What amount will the trader pay altogether?

Amount = principal + interest

= sh 400,000 + sh 10,000

= sh 410,000

MK primary MTC book 6 page 158

Understanding MTC book 6 page 128

Functional primary MTC book 6 page 112

FINDING THE RATE, TIME, AND PRINCIPAL (week 8 lesson 6)

1. Sarah deposited sh 50,000 on her savings account. At the end of 3 years the simple interest earned was sh 15,000. Calculate the rate of interest.

$P \times R \times T = I$

$\text{Sh } 50000 \times \frac{R}{100\%} \times 3 = 15{,}000$

$\frac{150{,}000R}{100} = 15{,}000$

$\frac{1500R}{1500} = \frac{15000}{1500}$

$R = 10\%$

2. What sum of money will yield an interest of 6000 at 5% for 3 years?

$P \times R \times T = I$

$P \times 5\% \times 3 = \text{sh } 6000$

$P \times \frac{5}{100} \times 3 = \text{sh } 6000$

$P \times \frac{15}{100} = \text{sh}6000$

$100 \times \frac{15P}{100} = \text{sh } 6000 \times 100$

$\frac{15P}{15} = \frac{60{,}000}{15}$

$P = \text{sh } 40{,}000$

3. In what time will sh 12000 yield an interest of sh 1800 at 5% per year

$P \times R \times T = I$

$\text{Sh } 12000 \times 5\% \times T = \text{sh } 1800$

$\text{Sh } 12000 \times \frac{5}{100} \times T = \text{sh } 1800$

$\text{Sh } 120 \times 5 \times T = \text{sh } 1800$

$\frac{\text{Sh } 600 \times T}{\text{Sh } 600} = \frac{\text{sh}1800}{\text{sh } 600}$

T = 3 years

Mk primary MTC book 7 pages 138/142

Understanding MTC book 6 page 130

Functional primary MTC book 6 page 114

Primary MTC for Uganda book 6 page 75

THEME: INTERPRETATION OF GRAPHS AND DATA.

TOPIC: DATA HANDLING. (week 9 lesson 1 and 2)

MEAN, MEDIAN, MODE, AND RANGE.

Mean = $\frac{\text{sum of items}}{\text{No. of items}}$

Median is the middle number after arranging the data in ascending or descending order.

Example

Find the median of 4,2,6,7,8,9,3

= 2,3,4,6,7,8,9

Median =6

Mode is the number/ figure/ score that appears more than the rest.

Or the number/ score with the highest frequency.

Example

Find the mode of 8,2,6,4,2,1,2

Number	tallies	frequency
8	I	1
2	III	3
6	I	1
4	I	1
1	I	1

Mode is 2

Modal frequency is the number of times the mode has appeared.

Range is the difference between the highest and the lowest score.

Example.

Given the following 2.4,6,7,8,3

Find the range.

Range = H – L

8 – 2

6

Mean is the result you get after dividing the sum of items by the number of items. It is also referred to as average or arithmetic mean.

$$\text{Mean} = \frac{\text{sum of items}}{\text{No. of items}}$$

1. Find the mean of 2, 4,7,2,8 and 1

$$\text{Mean} = \frac{\text{sum of items}}{\text{No. of items}}$$

$$= \frac{2+4+7+2+8+1}{6}$$

$$= \frac{24}{6}$$

$$= 4$$

2. Find the mean of 6, 4, 2a, 3a, and 5

$$\text{Mean} = \frac{\text{sum of items}}{\text{No. of items}}$$

$$= \frac{6+4+2a+3a+5}{5}$$

$$= \frac{6+4+5+2a+3a}{5}$$

$$\frac{15+5a}{5}$$

$$\frac{15}{5} \frac{+5a}{5}$$

$= 3 + a$ or $a + 3$

3. Find the average of 4x +1, 5x and 14

Average $= \frac{\text{sum of items}}{\text{No. of items}}$

$= \frac{(4x+1) + 5x + 14}{3}$

$= \frac{4x + 5x + 1 + 14}{3}$

$= \frac{9x + 15}{3}$

$= \frac{9x}{3} + \frac{15}{3}$

$= 3x + 5$

Understanding MTC bk 6 pg 154

PROBLEMS ON AVERAGE.

1. The average of 3 numbers is 12. What is the sum of the three numbers.

Average $= \frac{\text{sum of items}}{\text{No. of items}}$

$\frac{12}{1} = \frac{\text{sum of items}}{3}$

$12 \times 3 =$ sum of items

$36 =$ sum of items.

2. The average of 3, 0, 7 and x is 4 what is the value of x.

Average $= \frac{\text{sum of items}}{\text{No of items}}$

$\frac{3+0+7+x}{4} = \frac{4}{1}$

$\frac{10+x}{4} = \frac{4}{1}$

$10 + x = 16$

$10 - 10 + x = 16 - 10$

X = 6

3. The average age of 3 people is 18 years. The average age of 2 of them is 15 years, how old is the third person?

MORE ABOUT AVERAGE, MEAN, MEDIAN, MODE, MODAL FREQUENCY AND RANGE. (week 9 lesson 3 and 4)

The table below shows the age of children

Age in years	9	11	12	13	8
Number of children	2	1	4	1	1

a)How many children were recorded in the table?

2+1+4+1+1

9 children.

b)Find the modal age

Modal age is 12

c) Find the range

Range = H – L

= 18 – 9

9

d) Find the mean

Mean = $\frac{sum\ of\ items}{no.of\ items}$

= $\frac{(9\times2)+(11\times1)+(12\times4)+(13\times1)+(18\times1)}{2+1+4+1+1}$

= $\frac{18+11+48+13+18}{9}$

= $\frac{108}{9}$

= 12

e) Median 9,9,11,12,12,12,12,13,18

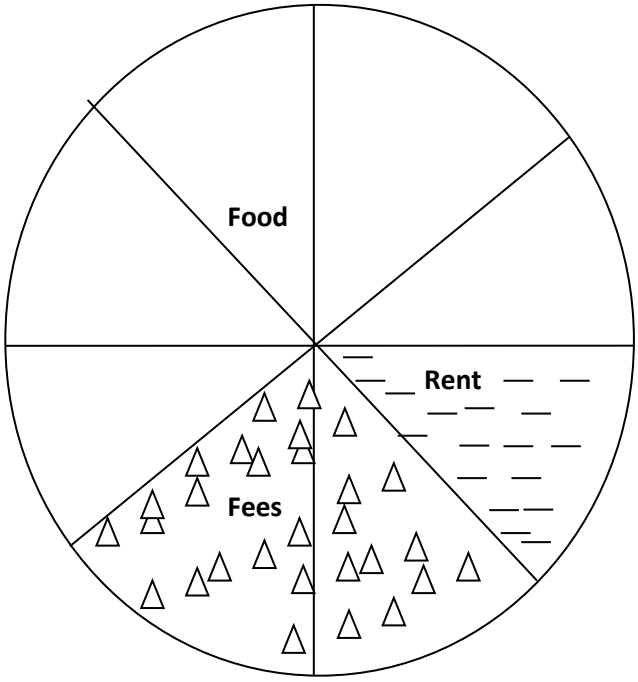
Median = 12

PIE- CHARTS (week 9 lesson 5 and 6)

A Pie- chart is also known as a circle graph.

It represents one complete whole in terms of fractions, 360 in terms of angles and 100 in terms of percentages.

The pie- chart shows how a man spends sh. 24000.



a)What fraction of his money is spent on food?

$\frac{5}{8}$

b) How much does he spend on;

i)Food $= \frac{5}{8} \times 24000$

$= 15000$

i)fees $= \frac{2}{8} \times 24000$

$= 6000$

c) Find the angle sector for rent.

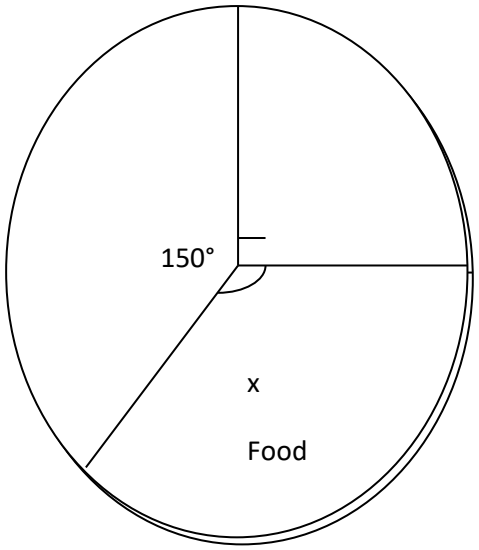
Rent = $\frac{1}{8} \times 360°$

= 45°

Learning MTC Bk 6 pg 107

PIECHARTS **INVOLVING DEGREES**

The pie chart below shows Mugisha's monthly expenditure if he earns sh. 72000



a)Find the value of x

X +90° + 150° = 360°

X + 240° = 360°

X + 240° - 240° = 360° - 240°

X = 120°

b) How much does he spend on transport?

$\frac{90°}{360°} \times 72000$ or 360° 72000

90 × 200 1° rep.....$\frac{72000}{360°}$

Sh. 18000 sh 200

90° .....90 × sh. 200

Sh. 18000

c) How much is spent on fees than food?

150° – 120° = 30°

= $\frac{30°}{360°}$ x sh 7200

= 30 x sh 200

= sh 6000

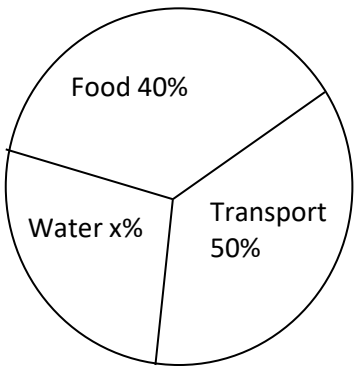
MK Primary MTC Bk 6 Pg

Understanding MTC bk6 pg 137

Functional primary MTC Bk 6 pg 134

PIE CHART INVOLVING PERCENTAGE.

1.The pie chart below shows how John spends sh 12000 in a day



a) Find the value of x

x+ 40% + 50% = 100%

x + 90% = 100%

x + 90% - 90% = 100%-90%

x = 10%

b) Find how much spent food is:

Food; 40% of 1200

$\frac{40}{100} \times 1200$

= sh. 480.

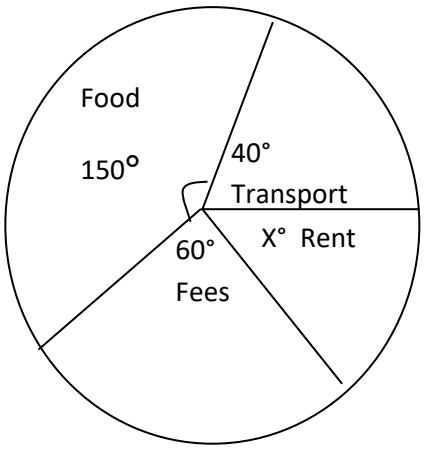
c) Find the angle sector transport.

50% = $\frac{50}{100} \times 360°$

= 180°

APPLICATION OF PIE CHART. (week 10 lesson 1 and 2)

1.The pie chart below shows how a family spends its income .



a) Find the value of x

X + 60° + 40° + 150°	=	360°
X + 100° + 150°	=	360°
X + 250°	=	360°
X + 250° - 250°	=	360°- 250°
X	=	110°

b)If the family spends 24000 on fees, find the family's total income

Method 1

Let the total of income be y

$$\frac{60}{360} \times y = 24000$$

$$36 \times \frac{6y}{36} = 24000 \times 36$$

$$\frac{6y}{6} = \frac{24000 \times 36}{6}$$

Y = 24000×6

Y = sh 144000

Method 2

Angle sector for fees = 60°

60° rep sh 24000

1° rep $\frac{sh\ 24000}{60}$

360° rep $\frac{sh24000}{60}$ ×360

24000× 6

Sh. 144000

CONSTRUCTION OF PIE CHART (week 10 lesson 3 and 4)

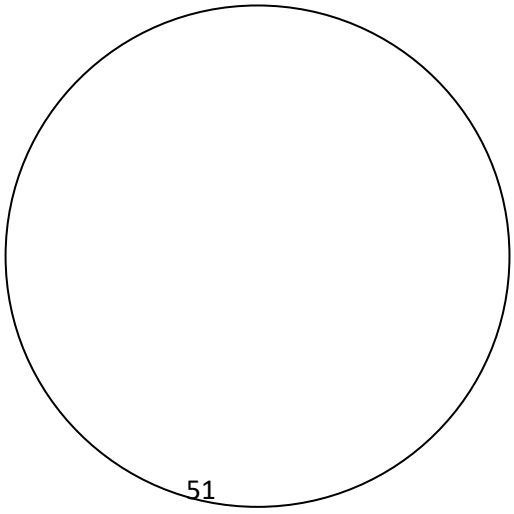
1. On a farm $\frac{2}{3}$ of the animals are cows, $\frac{1}{4}$ are goats and $\frac{1}{12}$ of them are sheep.

Construct a pie chart to show the above information

Cows $\frac{2}{3}$ × 360° = 240°

goats $\frac{1}{4}$ ×360° = 90°

sheep $\frac{1}{12}$ ×360° = 30°



2. The table below shows the number of books in the school library.

Subject	Math	English	Science	SST
No of books	50	35	20	15

Represent the above information on the pie chart

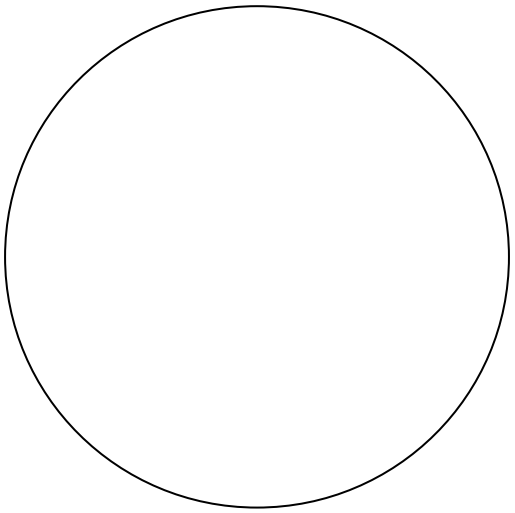
Total no. of books 50 + 35 + 20 + 15

= 120

Maths English science
SST

$\frac{50}{120} \times 360°$ $\frac{35}{120} \times 360°$ $\frac{20}{120} \times 360°$ $\frac{15}{120} \times 360°$

= 150° =105° = 60° =45°



2. The table below represents how Mr. Mirundi spends his salary.

Items	Car expense	Food	School fesss	Others	Savings
Percentages	15%	20%	x	10%	15%

a) Find the value of x

X +15%+ 20%+ 10% +15% = 100%

X +60% = 100%

X+ 60% - 60% = 100% - 60%

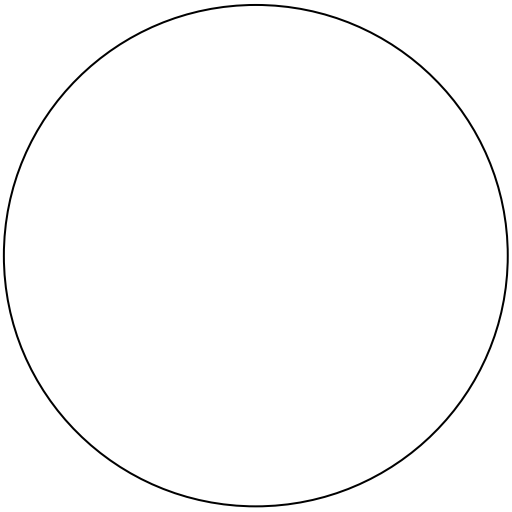
X = 40%

b) Draw a pie chart to represent the information above.

Car expense food school fees others savings

$= \frac{15}{100} \times 360^\circ = \frac{20}{100} \times 360^\circ = \frac{40}{100} \times 360^\circ = \frac{10}{100} \times 360^\circ = \frac{15}{120} \times 360^\circ$

$= 54^\circ \quad = \quad 72^\circ \quad = \quad 144^\circ \quad = \quad 36^\circ \quad = \quad 54^\circ$



CO-ORDINATES (week 10 lesson 5,6and 1 week 11)

Co-ordinates are ordered pairs of numbers used to mark or plot a point on a grid.

Co-ordinates are in order of? (x, y)

Examples of coordinators (2,4) (-2,5) (0,6) (-4,0)

A co-ordinate graph has two axes i.e. y axis and x axis

y axis runs from north to south (vertical axis)

x axis runs from west to east (horizontal axis)

A Co-ordinate graph has very many lines.

N.B All lines that are parallel to y axis and cross the x axis are called x lines.

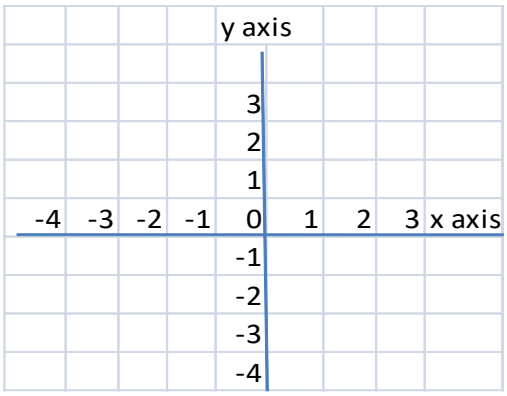
All lines that are parallel to x axis and cross the y axis are called y lines

x and y lines are named according to the point through which they pass or cross the x or y axis.

Example

A line crossing the x axis at point 2 is called x=2

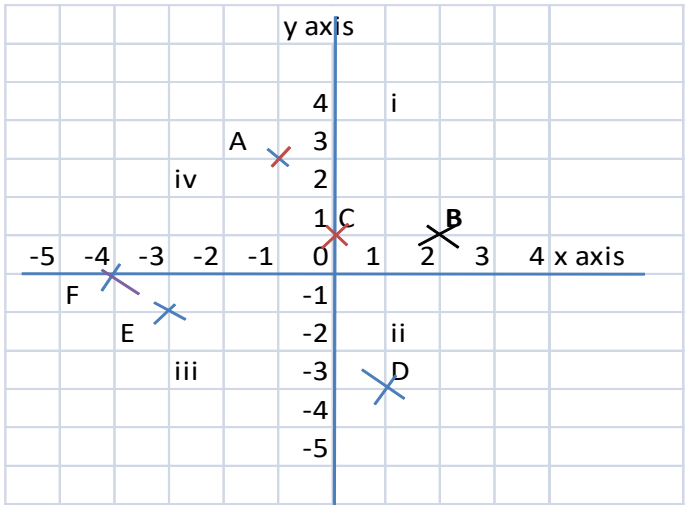
A line crossing the y axis at point 2 is called y=2



NAMING THE GIVEN POINT

(Giving the coordinate of the given point)

Coordinates are written in the order (x, y) when the x line and the y line meet they form a point. We can name the points formed by using the two lines that have crossed each other starting with the x line and then the y line.



Region I all coordinates are positive (+x, +y)

Ii all x coordinates are positive and y negative (+x, -y)

Iii all coordinates are negative (-x, -y)

Iv all x coordinates are negative ane y coordinates are positive (-x, +y)

Name the given coordinates of point

A (-1,3) E(-3,-1)

B (2,1) F(-4,0)

C (0,1)

D (1,-3)

MK Primary MTC book 7 page 177

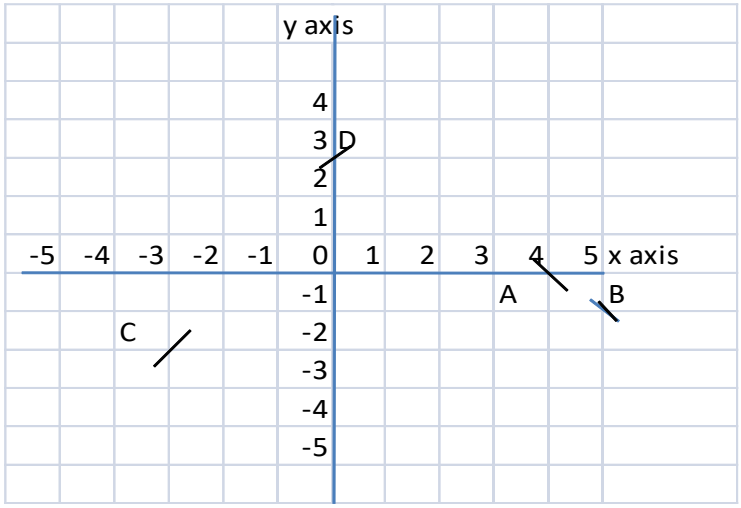
Functional primary MTC book 7 page 163

Primary mathematics for Uganda Bk 6 page 83

Primary School Mathematics book 6

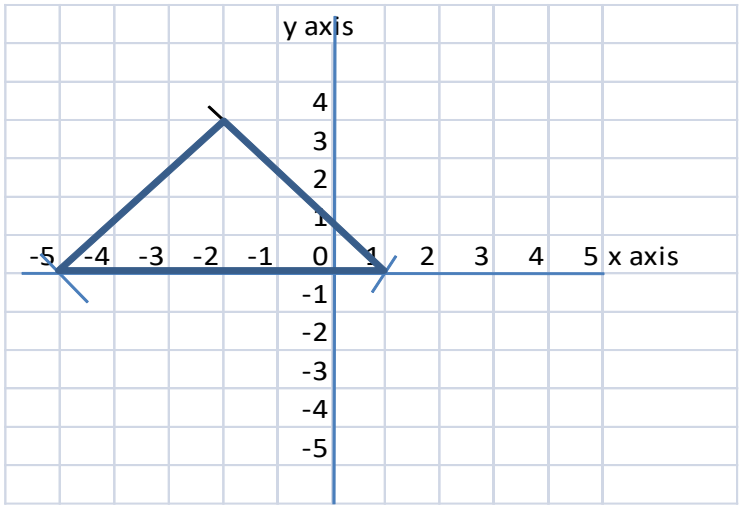
PLOTING POINTS ON A GRID

Plot the following points on the grid A(4,0) B(5,-1) C(-3,-2) D(0,3)



FORMATION OF FIGURES BY PLOTTING

Plot P(-2,4), Q (1,1), R(-5,1) join P to Q, Q to R, and R to P name the figure formed.



Triangle

Area $= \frac{1}{2}$ bh

$= \frac{1}{2} \times 6\text{units} \times 3\text{units}$

= 9 sq units

MONEY (week 11 lesson 2)

Money is a measure of value and a medium of exchange for goods and services.

There are coins and notes (paper money).The notes have serial numbers.

FINDING THE NUMBER OF BANK NOTES

Examples

1. A trader went to New Creation bank and withdrew five thousand shilling bank notes numbered from AP234500 to AP234599.

a) How many bank notes did he withdraw from the bank?

No. of bank notes=(Last note – First note) + 1

= AP234599

-AP234500

99 +1

No. of bank notes= 100 notes

b) How much money did he withdraw altogether?

1 note ---------- 5000/=

100 notes---------- 5000/= x 100

500000/=

He withdrew 500000/=

MK primary Mtcs book 6 pages 217 to 218

Supplementary Mtcs book 5, 6, and **7**

CURRENCY CONVERSION (week 11 lesson 3)

A currency is the money used in a particular country.Different countries use different currencies as shown by the table below.

COUNTRY	CURRENCY	SYMBOL

Uganda	**Shilling**	**Ush**
Kenya	**Shilling**	**Ksh**
Tanzania	**Shilling**	**Tzsh**
France	**Franc**	**Ff**
Zambia	**Kwacha**	**Zk**
Rwanda	**Franc**	**Rf**
Australia	**Dollar**	**$**
India	**Rupee**	**Rs**
Italy	**Lira**	**Lit**
Denmark	**Kronme**	**(Nkr)**
Libya	**Binar**	**(Id)**
COUNTRY	**CURRENCY**	**SYMBOL**
Spain	**Peseta**	**(pta)**
Greece	**Drachima**	**(Dr)**
Japan	**Yen**	**Y**
China	**Yuan**	
Nigeria	**Naira**	**(n)**
S. Africa	**Rand**	**S.A Rand**
Sudan	**Pound**	**$sd**
U.S.A	**US dollar**	**$**

Currency conversion

Example

1. Wandera has 20 US dollars. How much money in Ugandan shillings does he have if 1 US dollar is equivalent to Ush.2600?

1 US dollar----------Ush.2600

20 US dollars----------Ush.2600 x20

Ush.52000

Wandera had Ush.52000

2. Anthony has Ush.960000, How many British Pounds will he get if Ush.3200 is equivalent to 1 British Pound?

Ush.3200----------1 pound

Ush.960000---------- 960000

3200

Anthony will get 300 British Pounds.

MK mtcs book 6 page **Fountain Primary mtcs book 6 pages 189 to 195**

TIME SPAN DURATION (week 11 lesson 4 and 5)

How many hours are there between 2:30am and 9:00 am?

Duration 9:00am

- 2:30am

6:30 = 6 hours 30 minutes

$6\frac{1}{2}$ Hrs

The lesson started at 9:40am and ended at 1:20pm. How long did it take?

Duration = Ending time – Starting time

Ending time = 1:20pm = 1320Hrs

Starting time = 9:40am – 0940Hrs

=	1320Hrs	60 + 20 = 80
	- 0940Hrs	- 40
	340	40

3 Hours 40 minutes

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MORE ABOUT TIME

A forty minutes lesson started at 9:40am when did it end.?

Ending time = Starting time + Time taken

9:40am	40+40 = 80
+ 40	-60
1020	20

It ended at 10:20am

An examination took 2 hours and 15 minutes. If the examination ended at 1:30pm when did it start?

Starting time = Ending time – Duration

1:30pm – 2Hrs Min

1:30pm – 1330Hrs

Hrs	Min
13	30
- 2	15
11	15

It started at 11:15am.

TIME TABLES

The timetable shows the departure and arrival time of a taxi at the given stations.

STATION	ARRIVAL	DEPARTURE
Kayabwe		8:15am
Buwama	8:35am	8:45am
Kamengo	9:10am	9:17am
Mpigi	9:47am	10:02am
Katende	10:15am	10:25am
Nsangi	10:40am	11:00am
Kyengera	11:30am	11:40am
Kampala	11:55am	

NB: Time spent at a station = Departure – arrival

Time taken to travel from one station to another

= Arrival time at last station – Departure time at 1st station

At what time did the taxi arrive at Nsangi?

At 10:40am

At what time did the taxi leave Katende?

At 10:25am.

SPEED

Speed / average speed = $\frac{Distance\ covered}{Time taken}$

A car travels for 3 hours to cover a distance of 210KM. at what speed does the car travel?

Speed = $\frac{Distance}{Time}$

= $\frac{210km}{3Hrs}$

= 70 km / hr

A train travelled for 40 minutes and covered 280km. what was its average speed?

Average speed = $\frac{Distance\ covered}{Time taken}$

280 km ÷ $\frac{40}{60} hrs$

280km x $\frac{60}{40} hrs$

70 km x 6

420km / hr

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Understanding MTC bk 6 pg 190.

Functional Primary MTC bk 6 pg 184

DISTANCE SPEED AND TIME revision(week 11 lesson6)

Distance = Speed x Time

Find the distance travelled by a car in 3 hours at 60km / hr.

S = 60km/hr T= 3hrs

D = S x T

60km / hr x 3hrs

$\frac{60km}{1hr}$ x 3hrs

= 180km

A bus travelled at 120km / hr for 45 minutes.

Find the distance covered.

D = S x T

120km / hr x $\frac{45}{60}hrs$

$\frac{120km}{1hr}$ x $\frac{45}{60}hrs$

2km x 45

90km

A bus travelled at 50km / hr leaves Wanseko at 7:30am and arrives at Kampala at 1:30pm. What is the distance between Kampala and Wanseko?

D = S x T

T = 1:30pm – 7:30am

1330hrs

- 730hrs

6hrs

D = 50km / hr x 6hrs

$\frac{50}{1km}$ x 6hrs

300km

FINDING TIME TAKEN

$$\text{Time} = \frac{Distance}{Speed}$$

How long will a car take to cover a distance of 120km at a speed of 4okm /hr

$$\text{Time} = \frac{Distance}{Speed}$$

$$\frac{120km}{40km/hr}$$

3hours

A car covered a distance of 120km at an average speed of 60km/hr. how much longer does it take if it moves at 40km/hr.

$$\text{Time} = \frac{Distance}{Speed}$$

Time taken when using a speed of 40km/h

$$\frac{120km}{60km/hr}$$

2hrs

$$\frac{120km}{40km/hr}$$

3hrs

3hrs – 2hrs = 1 hours longer.

At 30km/hr a car covers a distance of 180km. How many hours does it take to cover the same distance at 90km/hr.

MORE ABOUT SPEED (week 12 lesson1)

EXPRESSING KILOMETRES PER HOUR AS METRES PER SECOND

Express 72km/hr as metres per second.

Km = 1000m

72km = 72 x 1000m

72000m

1hr = 3600 sec

Speed = $\frac{72000m}{3600\,\text{sec}}$ = 20m/sec

Express 360km/hr as metres per second

1km = 1000m

360km = 360 x 1000m

360000m

1hr = 3600sec

$\frac{360000m}{3600\,\text{sec}}$

100m/sec

Week 12 lesson 2

EXPRESSING METRES PER SECOND TO KILOMETRES PER HOUR

Express 20m/sec to km/hr

1000m = 1km

$20\text{m} = \frac{20}{1000} km$

3600sec = 1hr

$1\text{sec} = \frac{1}{3600} hr$

$S = \frac{20}{1000} km \div \frac{1}{3600} hr$

$\frac{20}{1000} km \times \frac{3600}{1} hr$

= 72km/hr

Change 100m/sec to km/hr

1000m = 1km

$100\text{m} = \frac{100}{1000} km$

3600sec = 1hr

$1\text{sec} = \frac{1}{3600} hrs$

$S = \frac{100}{1000} km \div \frac{1}{3600} hrs$

$\frac{100}{1000} km \times \frac{1}{3600} hr$

360km / hr

FINDING AVERAGE SPEED (week 12 lesson 3 and 4)

A car takes 3 hours to cover a certain journey at 60km/hr but it takes only 2 hours to return through the same distance. Calculate the average speed for the whole journey.

1^{st} part of the journey	2^{nd} journey
T = 3hrs	Distance = 180km
S = 60km/hr	T = 2hours

D = S x T

60km/hr x 3hrs

$\frac{60km}{1hr}$ x 3hr

180km

Average speed = $\frac{T.Distance}{Totaltime}$

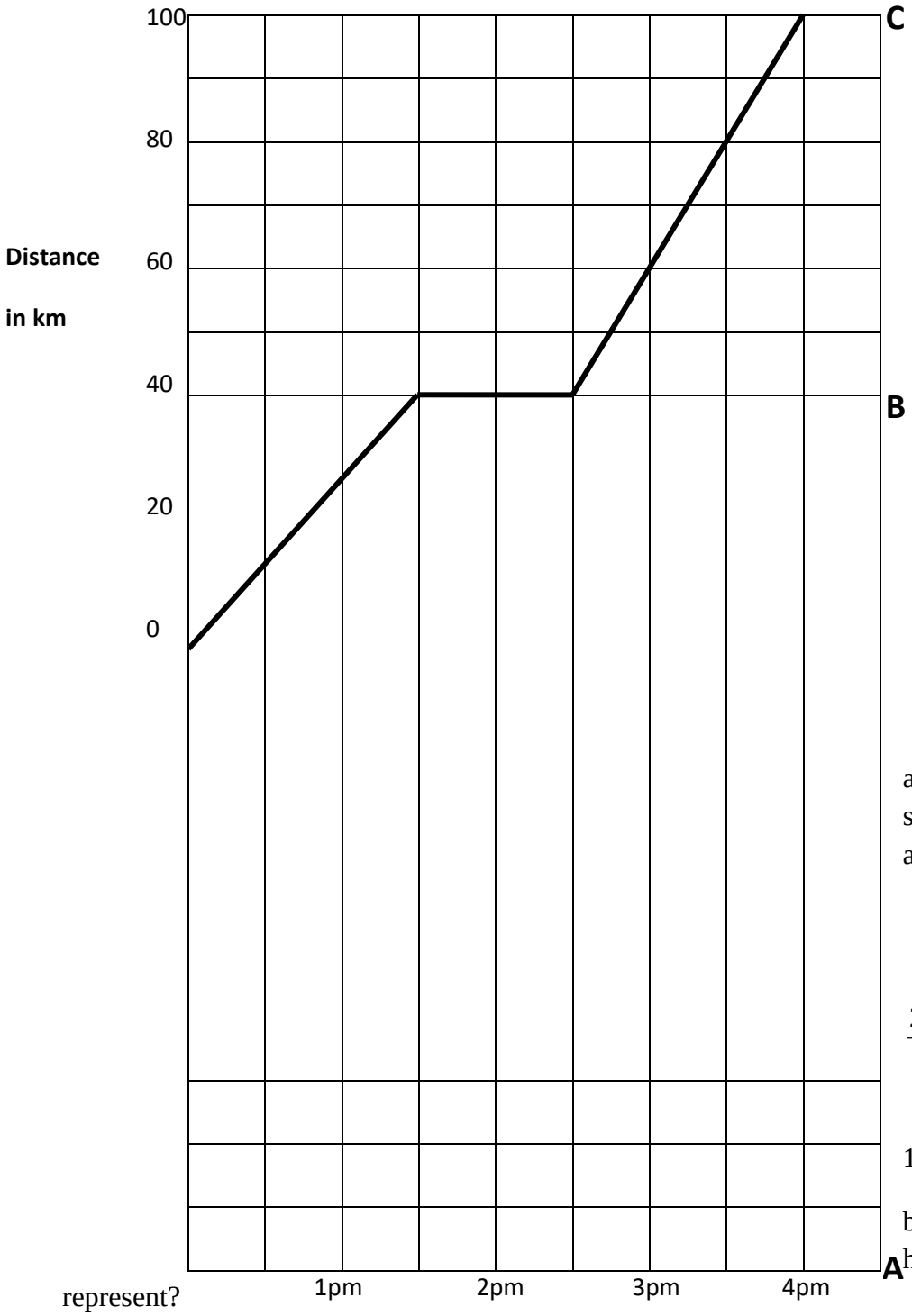
$= \frac{180km + 180km}{3hr + 2hr}$

$= \frac{360km}{5hrs}$

= 72km/hr

<u>TRAVEL GRAPHS</u> (week 12 lesson 5 and 6).

The total graph below shows the motorists journey from town A via town B to town C.



a) Find the scale on the vertical axis.

2sq → 20km

1sq rep $\frac{20km}{2}$

1sq rep 10km.

b) What was the horizontal axis represent?

Time

c) How far if town A from B? 40km

d) How far is town C from B?

100km – 40km

= 60km

e) For how long was he at town b?

for 1 hour.

f) At what time did he leave town B?

2:30pm

g) Calculate the average speed of the motorists.

Distance = 100km

Time = 4hrs

Speed = $\frac{100km}{4hrs}$

= 25 km/hr

Functional Pri NTC Bk 6 pg 198

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MATHEMATICS LESSON NOTES

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