WEEK TWO
LESSON ONE

TOPIC SETS

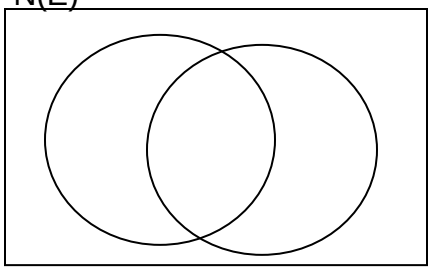
APPLICATION OF SETS

Examples

1. In a class of 30 pupils 18 like music (M), 21 like Art (A) and some like both.

(a) Represent the above information on a Venn diagram.

N(E)=



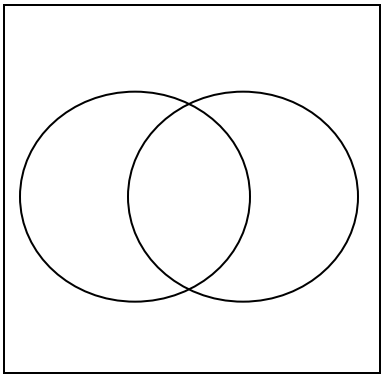
(b) How many pupils like both subjects.

Solution

18-x + x +21 – x = 30
18+21-x =30
39-x=30
39-39-x =30-39
-x= -9
$\frac{-x}{-1} = \frac{-9}{-1}$
X = 9

:. 9 Pupils like both subjects

2. In a class of 40 pupils, 20 like mathematics (M), 17 like science (S), 'x' like both subjects while 8 do not like any of the subjects.
   (a) Represent the above information on a Venn diagram.
   Solution



b) How many pupils like both subjects?

Solution

8+20-x+ x +17- x = 40

28+17-x = 40

45-x = 40

45-45-x = 40-45

-x = -5

- x = - 5

- 1 = -1

X = 5

:. 5 Pupils like both subjects

c)What is the probability of selecting a pupil who likes only one subject?

Solution

(20 –x) + (17 – x)

(20-5) + (17-5)

15 +12

= 27

Prob (only one subject) = 27/40

REFERENCES

Fountain primary maths Book 7 pages 16 to 17
MK Book 7 pages 10 to 11
Understanding math Book 7 page 9
Macmillan Book 7 page 9
Functional math Book 7 pages12

LESSON TWO

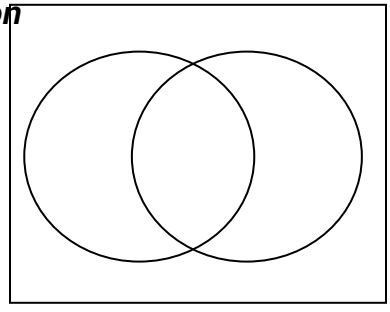
SOLVING PROBLEMS USING VENN DIAGRAMS GIVEN THE UNKNOWN IN THE "DIFFERENCE" REGION

Example 1

In a family of 10 members, 6 members eat meat (M), 5 members eat both meat and fish (F) while 'Y' members eat only fish.

(a) Represent the above information on a Venn diagram

Solution



(b) How many members eat only fish?

Solution

y + 5 + 6 – 5 = 10	y + 6 = 10
y + 6 + 5 – 5 = 10	y + 6 – 6 = 10 – 6
Y + 6 = 10	***Y = 4***
y + 6 – 6 = 10 – 6	
Y = 4	

(c) Find the number of pupils who eat fish.

Solution

(y + 5) Pupils

4 + 5

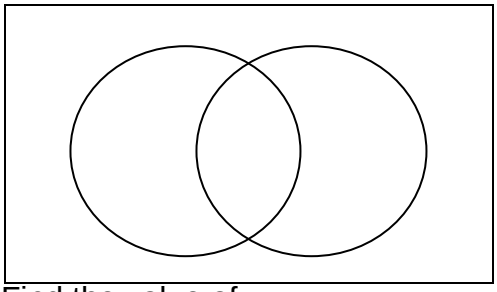
9 Pupils

Examples 2

In a class of 60 pupils, 25 like swimming (s), x pupils like music (m) only, 20 like both swimming and music and 5 like none of these.

(a) Represent this information on the Venn diagram.

Solution



(b) Find the value of x.

Solution

x + 5 + 20 + (25 – 20) = 60

x + 25 + 5 = 60

x + 30 = 60

x + 30 – 30 = 60 – 30

x = 30

(c) How many pupils like only one type of the activities?

Solution

x + (25 – 20)

30 + 5

35 pupils

REFERENCES

Fountain primary maths Book 7 pages 16 to 17
MK Book 7 pages 10 to 11
Understanding math Book 7 page 9
Macmillan Book 7 page 9
Functional math Book 7 pages12

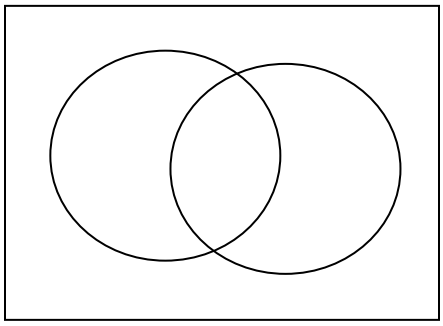
LESSON THREE

SOLVING PROBLEMS USING VENN DIAGRAMS GIVEN ONE OF THE SETS AS UNKNOWN

In a class of 35 pupils, y like mathematics (M), 20 like English (E) while 13 like both subjects.

(a) Using a Venn diagram, show the above information

Solution



(b) Find the number of pupils who like mathematics.

Solution

y – 13 + 13 + 20 – 13 = 35 **OR**

y + 7 = 35

y + 7 - 7 = 35 – 7

y =28

y + 20 – 13 = 35

y + 7 = 35

y + 7 – 7 = 35 – 7

y = 28

OR

y – 13 + 20 = 35

y + 7 = 35

y + 7 – 7 =35 -7

y = 28

28 Pupils like mathematics

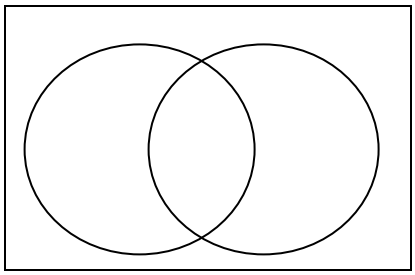
REFERENCES

Fountain primary maths Book 7 pages 16 to 17
MK Book 7 pages 10 to 11
Understanding math Book 7 page 9
Macmillan Book 7 page 9
Functional math Book 7 pages12

LESSON FOUR

SOLVING PROBLEMS USING VENN DIAGRAMS.
WHEN THE COMPLEMENT OF THE UNION IS NOT GIVEN
Example 1
In a village with 60 farmers, 26 grow rice, 24 grow beans, 10 grow both crops while t grow none of the above.
(a) Represent the above information on a Venn diagram.

Solution



b) Find the value of t .

Solution

t + 16 + 10 + 14 = 60
t + 40 = 60
t + 40 – 40 = 60 – 40
t = 20

REFERENCES

Fountain primary maths Book 7 pages 16 to 17
MK Book 7 pages 10 to 11
Understanding math Book 7 page 9
Macmillan Book 7 page 9
Functional math Book 7 pages12

LESSON FIVE

SOLVING PROBLEMS USING VENN DIAGRAMS WHEN ONE OF THE SETS IS THE UNIVERSAL
In a group of 40 peoples, they all football, 9 play football only, 15 play tennis, 25 swim and some enjoy all the three games.

(a) Draw a Venn diagram to represent the above information

Solution

(b) How many people participate in all the three activities?

Solution

15 – p + p + 25 – p + 9 = 40
15 + 25 – p + 9 = 40
49 – p = 40
49 – 49 – p = 40 -49
-p = -9
$\frac{-p}{-1} = \frac{-9}{-1}$
P = 9

REFERENCES

Fountain primary maths Book 7 pages 16 to 17
MK Book 7 pages 10 to 11
Understanding math Book 7 page 9
Macmillan Book 7 page 9
Functional math Book 7 pages12

WEEK THREE
LESSON ONE

SHARING IN RATIOS GIVEN TOTAL SHARE

Example 1
Share 18 mangoes in the ratio of 4:5.

Solution	1st share	2nd share
Total ratio	(4 x $\frac{18^{2}}{9}$) mangoes	(5 x $\frac{18^{2}}{9}$) mangoes
4 + 5		
9	(4 x 2) mangoes	(5 x 2) mangoes
	8 mangoes	**10 mangoes**

Example 2
Sh. 60,000 was shared among three sisters, Anne, Betty and Claire in the ratio 1:2:3 respectively.
How much did each get?

Solution	Anne's share	Betty share	Claries share
Total ratio.	10000	10000	10000
1 + 2 + 3	1 x $\frac{60000}{6}$/=	2 x $\frac{60000}{6}$/=	3 x $\frac{60000}{6}$/=
6	1 x 10000/=	2 x 10000/=	3 x 10000/=
	10000/=	***20000/=***	***30000/=***

REFERENCES

Fountain primary maths Book 7 pages 107 to 115
MK Book 7 pages 95 to 100
Understanding math Book 7 pages 128 to 144
Primary math Book 7 page 63
Functional math Book 7 pages 105 to 109

LESSON TWO

SHARING IN RATIOS GIVEN THE SHARE OF ONE PERSON.

Example 1

Paul and James shared some money in the ratio of 3:5 respectively. If James got 3000/= ,

(a) Find Paul's share

Solution

Paul : James — 5 parts represent 3000/=

3 : 5 — 1 part represent $\frac{3000}{5}$/= x 3

? : **3000/=** — 3 part represent $\frac{3000}{5}$/= x 3

= 600/= x 3

= 1800/=

(b) What was their total share?

Solution

Pupils share = 1800/=

James' share = 3000/=

Total share = 4800/=

OR Let x represent total share

$\frac{5}{8}$ x X = 3000/= x 8

8 x $\frac{5x}{8}$ = 3000/= x 8

5x = $\frac{3000}{5}$/= x8

X = 600 x 8

X = 4800/=

REFERENCES

Fountain primary maths Book 7 pages 107 to 115
MK Book 7 pages 95 to 100
Understanding math Book 7 pages 128 to 144
Primary math Book 7 page 63
Functional math Book 7 pages 105 to 109

LESSON THREE

SHARING IN RATIOS GIVEN DIFFERENCE RATIOS

Example1

A and B shared money in the ratio of 3:7 respectively. If B got shs 4000 more than A,

(a) Find the share of A

Solution

A: B — Difference in ratio

3:7 — 7 – 3

4

4 parts represent 4000/=

1 part represents $\frac{4000/=}{4}$ = 1000/=

3 parts represent 3 x 1000/=

3000/=

(b) Find their total share.

Solution

Total = 3 + 7

= 10

4 parts represent 4000/=

1 parts represent $\frac{4000/=}{4}$

10 parts represent 10 x 1000/=

= 10000/=

Example 2

Lucy and Danny shared some money in the ratio of 2:5 respectively. If Lucy got 1500/= less than Danny, how much did Danny get?

Solution

Lucy : Danny

2 : 5

Difference in ratio = 5 – 2

= 3

3parts represent 1500/=

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

5parts represent 5 x 500/=

= 2500/=

REFERENCES

Fountain primary maths Book 7 pages 107 to 115
MK Book 7 pages 95 to 100
Understanding math Book 7 pages 128 to 144
Primary math Book 7 page 63
Functional math Book 7 pages 105 to 109

LESSON FOUR

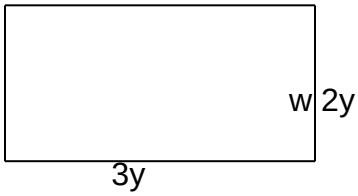
SHARING IN RATIOS, APPLICATION IN PERIMETER OF RECTANGLES

Examples

The ratio of the length to the width of a rectangle is 3:2 respectively. If the perimeter of the rectangle is 40cm.

(a) Find the actual length and width of the rectangle

Solution
Let y represent 1 part
Length = 3y
Width = 2y



2l + 2w = p
(2 x 3y) + (2 x 2y) = 40cm
6y + 4y = 40cm
10y = 40cm
10y / 10 = 40cm / 10
Y = 4cm

Length = 3 x y
= 3 x 4cm
= ***12cm***

width = 2 x y
= 2 x 4cm
= ***8cm***

(b) Find the area of the rectangle
Solution
Area = L x W
= 12cm X 8cm
= *96cm²*

REFERENCES

Fountain primary maths Book 7 pages 107 to 115
MK Book 7 pages 95 to 100
Understanding math Book 7 pages 128 to 144
Primary math Book 7 page 63
Functional math Book 7 pages 105 to 109

LESSON FIVE

ADDITION AND SUBTRACTION OF DECIMALS

a. Simplify 2.62 + 14 + 6.4

Solution

2.62
+ 14.00
6.40
23.02

b. Subtract 0.99 from 2

solution

2.00
0.99
1.01

REFERENCES

Fountain primary maths Book 7 pages 111
MK Book 7 pages 81 to 88
Understanding math Book 7 pages 116 to 125
Macmillan Book 7 pages 80 to 95
Functional math Book 7 pages 103 to 104
Supplementary math Book 8 pages 27 to 29

WEEK FOUR
LESSON ONE

MULTIPLICATION OF DECIMALS

a. Multiply: 1.3 x 1.2

Solution

$= \frac{13}{10} \times \frac{12}{10} = \frac{156}{100}$

$= \boldsymbol{1.56}$

b. Work out: 2.45 x 0.25

solution

$= \frac{245}{100} \times \frac{25}{100} = \frac{6125}{10000}$

$= \boldsymbol{0.6125}$

REFERENCES

Fountain primary maths Book 7 pages 111
MK Book 7 pages 81 to 88
Understanding math Book 7 pages 116 to 125
Macmillan Book 7 pages 80 to 95
Functional math Book 7 pages 103 to 104
Supplementary math Book 8 pages 27 to 29

LESSON TWO
DIVISION OF DECIMALS

Divide 0.72 ÷ 0.9

Solution

$0.72 \div 0.9 = \frac{72}{100} \div \frac{9}{10}$

$= \frac{72}{100} \times \frac{10}{9}$

$= \frac{8}{10}$

$= \boldsymbol{0.8}$

How many 1.5 metre pieces can be cut from a length of 7.5 metres?

Solution

$(7.5)\ m \div 1.5m = \frac{75}{10} \div \frac{15}{10}$

$= \frac{75}{10} \times \frac{10}{15}$

= 5pieces

REFERENCES

Fountain primary maths Book 7 pages 111
MK Book 7 pages 81 to 88
Understanding math Book 7 pages 116 to 125
Macmillan Book 7 pages 80 to 95
Functional math Book 7 pages 103 to 104
Supplementary math Book 8 pages 27 to 29

LESSON THREE
COMBINED OPERATIONS ON DECIMALS

Simplify; $\frac{3.2 - 0.08}{0.2 \times 0.3}$

Solution

3.20
0.08
3.12

$= \frac{2}{10} \times \frac{3}{10}$
$= \frac{6}{100}$
$= \boldsymbol{0.06}$

$= \frac{312}{100} \div \frac{6}{100}$
$= \frac{312}{100} \times \frac{100}{6}$
$= \boldsymbol{52}$

Work out: - $\frac{0.28 \times 0.81}{027 \times 4.2}$

Solution

$\frac{28}{100} \times \frac{81}{100} \quad \frac{27}{100} \times \frac{42}{10}$

$\frac{28}{100} \times \frac{81}{100} \times \frac{100}{27} \times \frac{10}{42}$

$\frac{2}{10} \quad \frac{2 \times 1 \times 1 \times 1}{10 \quad \times 1 \times 1}$

0.2

REFERENCES

Fountain primary maths Book 7 pages 111
MK Book 7 pages 81 to 88
Understanding math Book 7 pages 116 to 125
Macmillan Book 7 pages 80 to 95
Functional math Book 7 pages 103 to 104
Supplementary math Book 8 pages 27 to 29

LESSON FOUR
EXPRESSING FRACTIONS AS RECURRING DECIMALS
Express 2/3 as a decimal
Solution

LESSON FIVE
Expressing recurring decimals as fractions
Change 0.33----to a fraction
Solution
M = 0.33 ---------- (i)
10m = 0.333 --- x 10
10m = 3.333 ----- (ii)
-10m = 3.333 ---
M =0.333 ----
9m = 3
9m/9 = 3/9
M =⅓

Express 0.122 – to a common fraction
Solution
Let x represent the fraction
X = 0.1222 ------ (1)
10 x X = 0.1222 ------ x 10
10x = 1.222 -------- (ii)
10 x 10x = 1.222 -----x 10
100x = 12.222 ------- (iii)
100x = 12.222 ------- (iii)
10x = 1.222 --------- (ii)
90x = 11

90x/90 = 11/90
X = 11/90

REFERENCES
Fountain primary maths Book 7 pages 111
MK Book 7 pages 81 to 88
Understanding math Book 7 pages 116 to 125
Macmillan Book 7 pages 80 to 95
Functional math Book 7 pages 103 to 104
Supplementary math Book 8 pages 27 to 29

WEEK FIVE
LESSON ONE
ADDITION AND SUBTRACTION OF FRACTIONS

Work out: - $\frac{5}{6} - \frac{1}{3} + \frac{1}{2}$

Solution

$= \frac{5}{6} - \frac{1}{3} + \frac{1}{2} = \frac{5 + 3 - 2}{6}$

$= \frac{8 - 2}{6}$

$= \frac{4}{6}$

$= \frac{2}{3}$

solution

$= \frac{2}{1} - \frac{1}{3} + \frac{1}{4} = \frac{24 + 3 - 5}{12}$

$= \frac{27 - 4}{12}$

$= \frac{23}{12}$

$1\frac{11}{12}$

REFERENCES

Fountain primary maths Book 7 pages
Understanding math Book 7 pages 103 to 115
Supplementary math Book 8 page 29

LESSON TWO

MULTIPLICATION AND DIVISION OF FRACTIONS

1. Multiply: - $2\frac{1}{4} \times 1\frac{1}{5}$

Solution

$2\frac{1}{4} \times 1\frac{1}{5} = \frac{9}{4} \times \frac{6}{5}$

$= \frac{9 \times 3}{2 \times 5}$

$= \frac{27}{10}$

$= \mathbf{2\frac{7}{10}}$

2. Work out: - $1\frac{1}{4} \div 1\frac{3}{5}$

solution

$1\frac{1}{4} \div 1\frac{3}{5} = \frac{5}{4} \div \frac{8}{5}$

$= \frac{5}{4} \times \frac{5}{8}$

$= \mathbf{\frac{25}{32}}$

3. How many $1\frac{2}{3}$ are contained in 15

solution

$15 \div 1\frac{2}{3}$

$= 15 \div \frac{5}{3}$

$= 15 \times 3$

$= 3 \times 3$

$= 9$

REFERENCES

Fountain primary maths Book 7 pages
Understanding math Book 7 pages 103 to 115
Supplementary math Book 8 page 29

LESSON THREE AND FOUR

COMBINED OPERATIONS

1. Simplify $\frac{1}{3}$ of $(\frac{1}{2} - \frac{1}{4}) + \frac{7}{12}$

Solution

BODMAS

$\frac{1}{3}$ of $(\frac{2 - 1}{4}) + \frac{7}{12}$

1 of $\frac{1}{4} + \frac{7}{12}$

$\frac{1}{3} \times \frac{1}{4} + \frac{7}{12}$

$\frac{1}{12} + \frac{7}{12}$

$\frac{8}{12}$

$\mathbf{\frac{2}{3}}$

REFERENCES

Fountain primary maths Book 7 pages

Understanding math Book 7 pages 103 to 115

Supplementary math Book 8 page 29

LESSON FIVE

APPLICATION OF FRACTIONS

2/3 of a class are girls, if there are 20 girls in that class;

(a)Find the total number of pupils in the class.

Solution

Let x represent the total

$\frac{2}{3}$ of x = 20

$\frac{2}{3} \times X = 20$

$3 \times \frac{2X}{3} = 20 \times 3$

$\frac{2X}{2} = \frac{20 \times 3}{2}$

$\mathbf{X = 30}$

(b)Find the number of boys

Solution

Fraction of boys = $1 - \frac{2}{3}$

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

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

Number of boys = $\frac{1}{3} \times 30$

$= 1 \times 10$

= 10boys

No of boys = 30 – 20

= 10boys

REFERENCES

Fountain primary maths Book 7 pages

Understanding math Book 7 pages 103 to 115

Supplementary math Book 8 page 29

WEEK SIX

LESSON ONE

APPLICATION OF FRATIONS

(1) After covering 2/3 of a journey, a motorist still had 40km to cover. How long was the whole journey?

Solution

Fraction covered

$\frac{2}{3}$

Fraction left

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

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

$\frac{1}{3}$

Let whole journey

$\frac{1}{3}$ of y = 40km

$\frac{1}{3} \times y = 40km$

$3 \times \frac{y}{3} = 40km \times 3$

Y = 120k

2. Ina group, 1/6 are girls and there are 8more boys than girls.

(a)Find the total number of pupils in the group.

Solution

Fraction of boys = $1 - \frac{1}{6}$

$= \frac{6}{6} - \frac{1}{6}$

$= \frac{5}{6}$

Fraction of more boys = $\frac{5}{6} - \frac{1}{6}$

$= \mathbf{\frac{4}{6}}$

Let the total number be x

$\frac{4x}{6} = 8$

$6 \times \frac{4x}{6} = 8 \times 6$

$\frac{4x}{4} = \frac{8 \times 6}{4}$

$x = 2 \times 6$

$\mathbf{x = 12}$

There are 12 pupils in the group.

(b)How many girls are in the group?

Solution

$\frac{1}{6} \times 12$

2girls

REFERENCES

Fountain primary maths Book 7 pages
Understanding math Book 7 pages 103 to 115
Supplementary math Book 8 page 29

LESSON TWO

APPLICATION OF FRACTIONS.

Finding remainders: - Given one fraction
Given two fractions

1. $\frac{4}{5}$ of the class are boys and the rest are girls.

Find the fraction of girls.

Solution

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

$\frac{5}{5} - \frac{4}{5}$

$\mathbf{\frac{1}{5}}$

2.If $\frac{1}{4}$ of the animals are cows, $\frac{1}{3}$ are bulls and the rest are goats,find the fraction of goats.

Solution

$1 - (\frac{1}{4} + \frac{1}{3})$

$1 - \frac{3 + 4}{12}$

$1 - \frac{7}{12}$

$\frac{12}{12} - \frac{7}{12}$

$\frac{5}{12}$

REFERENCES

Fountain primary maths Book 7 pages
Understanding math Book 7 pages 103 to 115
Supplementary math Book 8 page 29

LESSON THREE AND FOUR

APPLICATION OF FRACTIONS (finding fraction of the remainder)

1. On a farm, $\frac{2}{3}$ of the animals are black, ¼ of the remainder are brown.

(a) Find $\frac{1}{3}$ of the fraction left

Solution

Black	Remainder	Brown	Fraction Left	1 Fraction Left
$\frac{2}{3}$	$1 - \frac{2}{3}$	$\frac{1}{3} \times \frac{1}{4}$	$\frac{1}{3} - \frac{1}{12}$	$\frac{1}{3} \times \frac{1}{4}$
	$\frac{3}{3} - \frac{2}{3}$	$\frac{1}{12}$	$\frac{4 - 1}{12}$	$\frac{1}{12}$
	$\frac{1}{3}$		$\frac{3}{12}$	
			$\frac{1}{4}$	

(b) Find 1/5 of the fraction left

$\frac{1}{5}$ of $\frac{1}{4}$

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

$\frac{1}{20}$

REFERENCES

Fountain primary maths Book 7 pages
Understanding math Book 7 pages 103 to 115
Supplementary math Book 8 page 29

LESSON FIVE

MORE ABOUT APPLICATION OF FRACTIONS

John spent 1/3 of his money on books and 1/6 of the remainder on transport.

(a) What fraction of his money was left?

Solution

Books	**remainder**	**transport**	**fraction left**	
$\frac{1}{3}$	$1 - \frac{1}{3}$	$\frac{1}{6}$ of $\frac{2}{3}$	$\frac{2}{3} - \frac{1}{9}$	or $1 - (\frac{1}{3} + \frac{1}{9})$
	$\frac{2}{3}$	$\frac{1}{6} \times \frac{1}{3}$	$\frac{6-1}{9}$	$1 - \frac{3+1}{9}$
		$\frac{1}{9}$	$\frac{5}{9}$	$1 - \frac{4}{9}$
				$\frac{9}{9} - \frac{4}{9}$
				$\frac{5}{9}$

(b) If he left with sh. 15000 how much did he have at first.

Solution

Let the total be x

$\frac{5}{9} \times X = 15000/=$

$9 \times \frac{5x}{9} = 15000/= \times 9$

$\frac{5x}{5} = \frac{15000/= \times 9}{5}$

$x = 3000/= \times 9$

$x = 27000/=$

REFERENCES

Fountain primary maths Book 7 pages

Understanding math Book 7 pages 103 to 115

Supplementary math Book 8 page 29

WEEK SEVEN

LESSON ONE AND TWO

TAPS

1. Tap A can fill a tank in 6 minutes and tap B can fill the same tank in 3 minutes. How long will both taps take to fill the tank if they are opened at the same time?

Solution

In one minute

Tap A fills 1/6 of the tank

Tap B fills 1/3 of the tank

Both taps fill (1/6 + 1/3) of the tank

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

$= \frac{3}{6}$

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

total time taken of fill tank

= (1 ÷½) minutes

= (1 x $\frac{2}{1}$) minutes

= 2minutes

2. Tap A takes 3 minutes to fill a tank and tap takes 4 minutes to draw water from the tank.

How many minutes will it take to fill the tank if both taps are left running?

Solution

In 1 minute

Tap A fills $\frac{1}{3}$ of the tank

Tap B empties $\frac{1}{4}$ of the tank

Bothe taps fill ($\frac{1}{3} - \frac{3}{4}$) of the tank

$\frac{4 - 3}{12}$

$\mathbf{\frac{1}{12}}$

total time taken to fill the tank

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

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

12 minutes

3. Tap A and B are connected to a tank. Tap A can fill the tank in 3 minutes. Ta\p B draws water from the tank. When both taps are running, if takes 12 minutes for the tank to be filled . How long does tap B take to draw water from the tank?

Solution

In 1 minute, tap A fills $\frac{1}{3}$ of the tank

In I minute both taps fill $\frac{1}{12}$ of the tank

In 1 minute tap B empties $\frac{1}{3} - \frac{1}{12}$ of the tank

$\frac{4 - 1}{12}$

$\frac{3}{12}$

$\mathbf{\frac{1}{4}}$

Total time taken to draw water from the taken

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

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

4 minutes

REFERENCE
MK prim math Book 7 page 78 to 79

LESSON THREE

PERCENTAGES
APPLICATION OF PERCENTAGES

1 Opio has 400 heads of cattle. 80% of them are cows and the rest are bulls.

Find the number of cows.

Solution

$\frac{80}{100} \times 400 = 80 \times 4$

$= 80 \times 4$

= 320 cows

(a) Find the percentage of bulls.

Solution

100% - 80%

20%

(b) What is the total number of bulls?

Solution

$\frac{20}{100} \times 400 = 20 \times 4$

= 80 bulls

OR

400
- 320
80bulls

2. If 30% of my salary is spent on food, 1 save sh. 21000. What is my salary?

%age saved = 100% - 30%

70%

70% represent 21000/=

1% represents $\frac{21000/=}{70}$

100% represents $21000 \times \frac{100}{70}$

$= 300 \times 100$

= 30000/=

$\frac{70}{100} \times y = 21000/=$

$10 \times \frac{7y}{10} = 21000/= \times 10$

$\frac{7y}{7} = \frac{210000}{7}$

y = 30000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON FOUR

PERCENTAGE INCREASE AND DECREASE

1. Increase sh,800 by 20%

Solution

New % = 100% + 20%
120%

New amount $\frac{120}{100} \times 800/=$
120 x 8
= 960/=

increase
20% of 800/=
$\frac{20}{100} \times 800/=$
20 x 8
= 160/=

New amount
800/=
+ 160/=
960/=

2. Increase sh.2000 by 10% then by 20%

Solution

Method 1

10% increament	new amount	20% increament	new amount
$\frac{10}{100} \times 2000$	2000	$\frac{20}{100} \times 2200$	2200
10 x 20/=	+ 200	20 x 22	+ 440
200/=	**2200/=**	**440/=**	**2640/=**

Method 2

1st increament = 100% + 10%
= 110%

2nd increament = 100% + 20%
= 120%

New amount = $\frac{110}{100} \times \frac{120}{100} \times 2000$
= 11 x 120 x 2/=
= 1320 x 2/=
= **2640/=**

3.Decrease sh.12000 by 10%
Solution
New % = 100% - 10%
= **90%**
90 x 1500/=
100
90 x 15
1350/=
4.Decrease sh. 12000 by 5% then by 10%
Solution
100% - 5% (5% reduction)
100% - 10% (10% reduction)
95 x 90 x 12000
100 100
95 x 9 x 12/=
10260/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON FIVE

FINDING ORIGINAL NUMBER AFTER INCREASE

1. What amount when increased by 20% becomes sh.1440?
   Solution
   After increase the new percentages
   Method 1
   100% + 20% = 120%
   120% rep 1440
   1% rep 1440
   120
   100% rep 100x 1440
   100
   100 x 12
   1200/=

   Method 2
   Let the amount be x
   (100% + 20%) of x = 1440/=
   100 x 120 x X = 1440 x 100
   100
   120x = 144000
   120 120
   x = 1200/=
2. When the prices of a radio was increased by 30% it becomes sh.16900. What was the old price?

Method 1
New % = 100% + 30%
= 130%
130% rep sh 16900
1% rep sh 16900
130
= 130

method 2
let the salary be y
100% + 30% = 130%
130 x y = 16900
100
100 x 130y = 16900 x 100
100

100% rep 100 x 130/=
= 13000/=

$\frac{130y}{130} = \frac{16900}{130} \times 100$

Y = 13000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

WEEK EIGHT
LESSON ONE AND TWO
FINDING ORIGINAL NUMBER AFTER DECREASE

1. If a man's salary is decreased by 35% it becomes sh.15600. what is his salary?

Solution

Method 1

100% - 35% = 65%
65% rep 15600/=
1% rep $\frac{15600/=}{65}$
100% rep 100 x $\frac{15600}{65}$
100 x 240
24000/=

method 11

100% - 35% = 65%
let the salary be x
$\frac{65}{100}$ of x = 15600/=
100 x $\frac{65x}{100}$ = 15600 x 100
65x = $\frac{15600}{65}$ x 100
X = 24000/=

2. When the price of a radio is reduced by 25% it becomes sh.67500. what was the old price of the radio?

Solution

Method 1

New % = 100% - 25%
75%
75% rep 67500/=
1% rep $\frac{67500/=}{75}$
900/=

100% rep 100 x 900/=
90,000/=

method 2

new % = 100% - 25%
75%
Let the old price be x
$\frac{75}{100}$ x X = 67500/=
100 x $\frac{75x}{100}$ = 67500 x 100
$\frac{75x}{75} = \frac{6750000}{75}$
X = 90,000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117

LESSON THREE

FINDING PERCENTAGE OF INCREASE OR DECREASE

1. Where 400kg are increased by p% they become 440kg. Find the value of p.

Solution

Increase = 440kg
-400kg
40kg

(40kg x 100)%
400kg
10%
P = 10%

2. 800 pupils where decreased by y% to 680 pupils. find the value of y.

Solution

Decrease = 800
-680
120

y = (Decrease x 100)
Old no
y = 120 x 100
y = 15%

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
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Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON FOUR AND FIVE

PERCENTAGE PROFIT AND LOSS

The idea of increase can also give the same meaning as: gain, profit or raise.

1. An article was bought at sh. 100,000 and sold at sh.120000. calculate the percentage profit

Solution

Profit = sp – cp
= 120,000 – 100,000/=
= 20,000/=

% profit = (Profit x 100) %
B.P
= (20000 x 100) %
100000
= 20%

2. Otim bought a shirt at sh. 4000 and sold it at sh.3000. Find his percentage loss.

Solution

Loss = 4000/= - 3000/=
= 1000/=

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

= $\frac{1000 \times 100}{4000}$ %

= 25%

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

WEEK NINE
LESSON ONE AND TWO

FINDING SELLING PRICE GIVEN PERCENTAGE PROFIT OR LOSS AND BUYING PRICE

1. Birigwa bought a DVD player at sh. 300,000 and sold it at 10% profit. Find his selling price.

   Solution new % = 100% + 10%
   = **110%**

   $\frac{110}{100} \times 300000/=$

   330000/=

2. A fridge bought for sh.600,000 was sold at a loss of 25%. Calculate the selling price.

   Solution new % = 100% -25%
   = 75%

   New amount = $\frac{75}{100} \times 60000/=$

   = 75 x 6000/=
   = 450000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON THREE

FINDING COST PRICE GIVEN PERCENTAGE PROFIT OR LOSS AND SELLING PRICE

1. By selling a blanket at sh. 36000, a trader made a profit of 20%. Calculate the cost price of the blanket

Solution

New % = 100% + 20%

= 120%

Cost price % = 100%

120% rep 36000/=

1% rep $\frac{36000/=}{120}$

100% rep 100 x $\frac{36000/=}{120}$

= 30000/=

2. A dealer sold a bicycle for sh. 45000 there by losing 10%

(a) Calculate the original price of the bicycle.

Solution

New % = 1000% - 10%

= 90%

Original % = 100%

90% rep = 45000/=

1% rep = $\frac{45000/=}{90}$

100% rep 100 x 500

= 50000/=

(b) How much did he lose

Solution

$\frac{10}{100}$ x 50000/=

= 5000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
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Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON FOUR AND FIVE

DISCOUNT

Discount is realized when a trader sells an item at a price less than the marked price.

1. The marked price of a book is sh.4000. If a customer is offered a 10% discount:

(a) How much is the discount?

Solution

$= \frac{10}{100} \times 4000/=$

$= 10 \times 40$

$= \mathbf{400/=}$

(b) How much does the customer pay?

Solution

4000/=
- 400/=
3600/=

or new % = 100% - 10%
= 90%
= 90 x 4000/=
= **3600/=**

90 x 40
3600/=

2. The marked price of a shirt was sh. 1500. After a discount a customer paid sh.1200.how much was the discount

Solution

Discount = marked price – cash price
= 1500/= - 1200/=
= 300/=

(a) Calculate the percentage discount.

Solution

$\%\ \text{discount} = \frac{\text{Discount} \times 100}{\text{Marked price}}\ \%$

$= \frac{300 \times 100}{1500/=}\ \%$

= 20%

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
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Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

WEEK TEN
LESSON ONE AND TWO

FINDING THE MARKED PRICE (ORIGINAL PRICE)

1. Cissy paid sh. 18000 for a hand bag after being offered a discount of 10%. Calculate the marked price of the bag?

New % = 100% - 10%
= 90%
90% rep 18000/=

1% rep $\frac{18000}{90}$

100% rep = 100 x 200

= 20000/=

(c) How much was the discount

20000/=

-18000/=

2000/=

or Discount = $\frac{10}{100}$ x 20000/=

= 10 x 200

= 2000/=

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
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Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON THREE

COMMISSION

1. A salesman was paid a salary of sh.10000 plus a commission of 10% of the value of goods sold. If he sold goods worth sh 6500, how much did he earn altogether?

Solution

Salary = 10000/=

Commission = $\frac{10}{100}$ x 6500

= **650/=**

Total amount earned = 10000

+ 650

10650/=

2.Kamara was given a commission of 3% of his sales. How much did he earn if he sold 50 toys at sh. 15000 each?

Solution

Total sales = 80 x 15000/=

= 1,200,000/=

His commission = $\frac{3}{100}$ x 1200, 000/=

= **36,000/=**

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
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Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON FOUR AND FIVE
SIMPLE INTEREST

1. Calculate the simple interest on sh.8000 for 2yrs at 10% per annum

Solution

S.I = PTR

$= 8000 \times 2 \times \frac{10}{100}$

$= 80 \times 20$

$=$ **1600/=**

2. Calculate the simple interest on sh.24000 for 8 months at simple interest rate of 15% per year.

Solution

S.I = PTR

$= 24000 \times \frac{8}{12} \times \frac{15}{100}$

$= 20 \times 8 \times 15$

$=$ **2400/=**

3. Calculate the simple interest on sh. 24000 for 8 months at a simple interest rate of 2% per month.

Solution

S.I = PTR

$= 24000 \times 8 \times \frac{2}{100}$

$= 240 \times 16$

$=$ **3840/=**

REFERENCES

Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

WEEK ELEVEN
LESSON ONE AND TWO

FINDING RATE, PRINCIPAL OR TIME

1. Nabifo deposited sh.50000 on her saving s account. At the end of 3yrs the simple interest earned was sh.15000. Calculate the rate of interest.

Solution

PTR = I

$50000 \times 3 \times \frac{R}{100} = 15000$

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

R = 10%

2. Calculate the rate of interest if sh.30000 can yield a simple interest of sh.1125 in 9months.

Solution

P x T x R = I

$30000 \times \frac{9}{12} \times \frac{R}{100} = 1125$

$\frac{75 \times 3 \times R}{75 \times 3} = \frac{1125}{75 \times 3}$

R = 5%

3. In what time will sh.1200 yield an interest of sh. 1800 at per year?

Solution

P x T x R = I

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

$\frac{600T}{600} = \frac{1800}{600}$

T= 3years.

REFERENCES

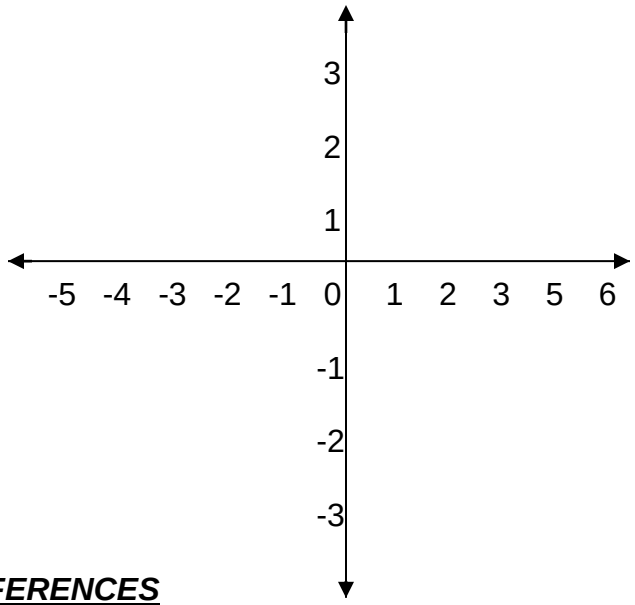
Fountain primary maths Book 7 pages 127 to 141
MK Book 7 pages 105 to 143
Understanding math Book 7 pages 232 to 250
Macmillan Book 7 pages 103 to 110
Functional math Book 7 pages 114 to 117
Supplementary math Book 8 page 132

LESSON THREE
COORDINATES

INTRODUCTION

Identifying lines of a coordinate graph

Identify all possible lines on the grid below;



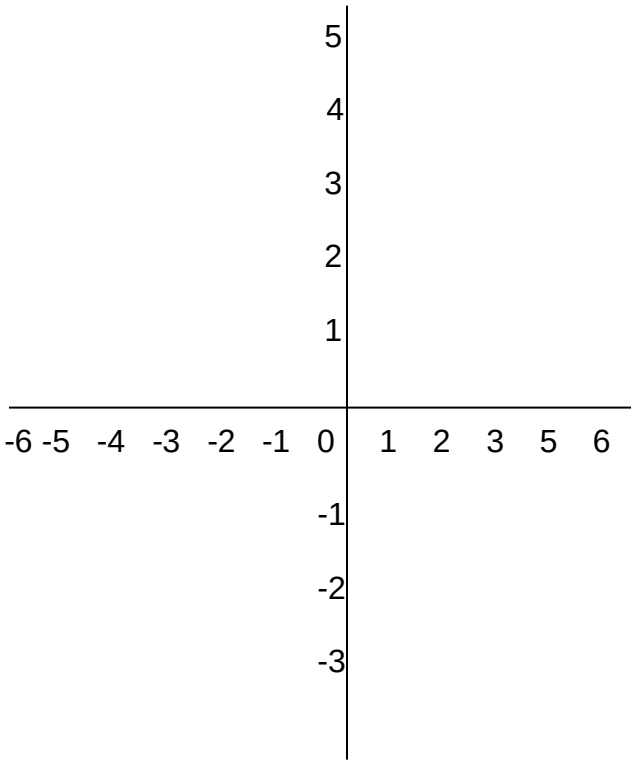
REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON FOUR
PLOTING GIVEN POINTS

Plot the following point on a grid
A(0,5), B(0,-4) C(3,0), D(-4,0) E(-2,-2) F(-3,-5) G(+2,-4), H(-5,+1) etc.



REFERENCES

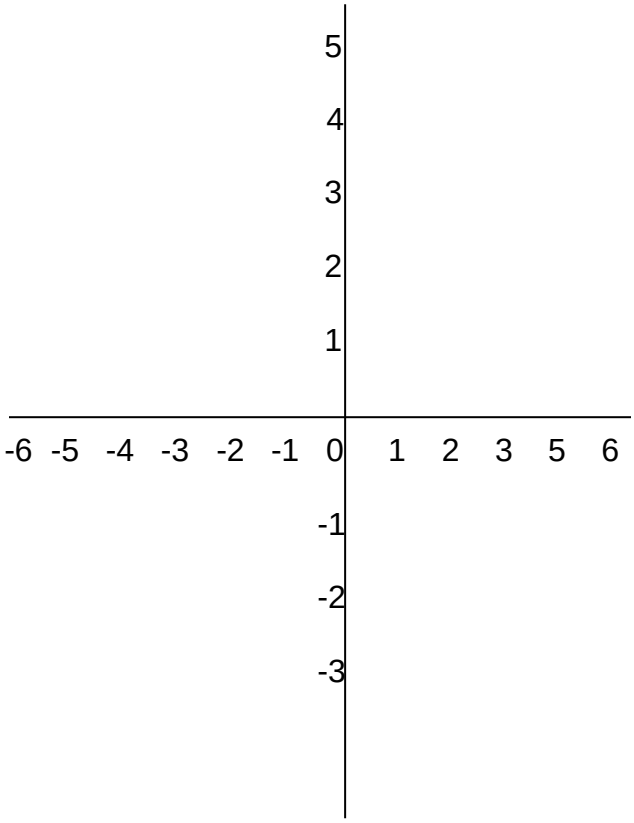
Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON FIVE

NAMING PLOTTED POINTS

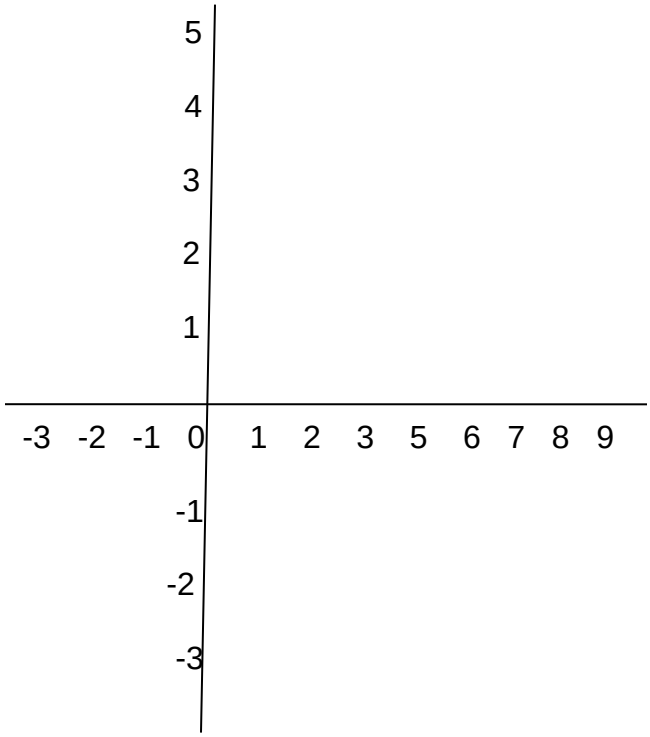
Name the various points on the coordinate graph.



Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

WEEK TWELVE
LESSON ONE AND TWO -4
FORMING FIGURES
On the grid below plot the following points
U(-1,4), V(3,4), W(7,-2) and X(-1,-2)



Join point U, to V, V to W, W to X and X to U and name the figure formed .
A trapezium
(i) Find its area.
Area = $\frac{1}{2}$h (a + b)
$\frac{1}{2}$ x 6units (4units + 8units)
3units x 12units
= **36square units**

(ii) If each small square represents a cm, work out the area of the above figure
Area = $\frac{1}{2}$h (a + b)
1 x6cm (4cm + 8cm)
3cm x 12cm
= **36cm²**

REFERENCES
Fountain primary maths Book 7 pages 177 to 198

MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON THREE AND FOUR

USING EQUATION OF THE LINE TO COMPLETE TABLES

1. Given that y = x + 1, complete the table below.

X	-3	__	-1	__
Y	- 2	-1	__	1

2. Given that y = x - 2, complete the table below.

Y	- 4	---	- 2	---
X	- 2	- 1	---	

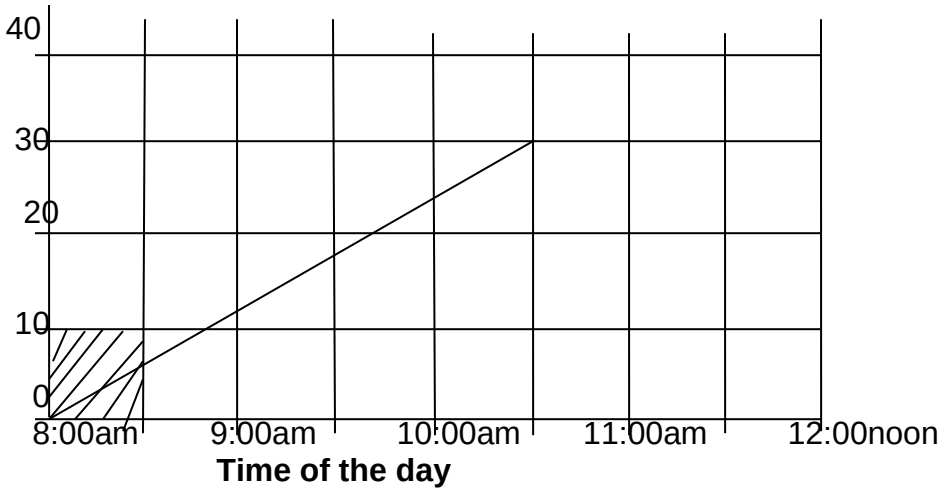
REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

TERM TWO
WEEK TWO
LESSON ONE AND TWO
TRAVEL GRAPHS
READING HORIZONTAL AND VERTICAL SCALES.

- Identification of horizontal and vertical axis
- Interpreting and reading scales correctly study the travel graph below and answer the questions that follow.
-



1. What is shown on the
(i) Vertical axis?
Distance in km

(ii) Horizontal axis?
Time of the day

2. What is the scale on the
(i) vertical axis?
I small sq rep. 5km

(ii) horizontal axis?
I small sq rep 30minutes

REFERENCES

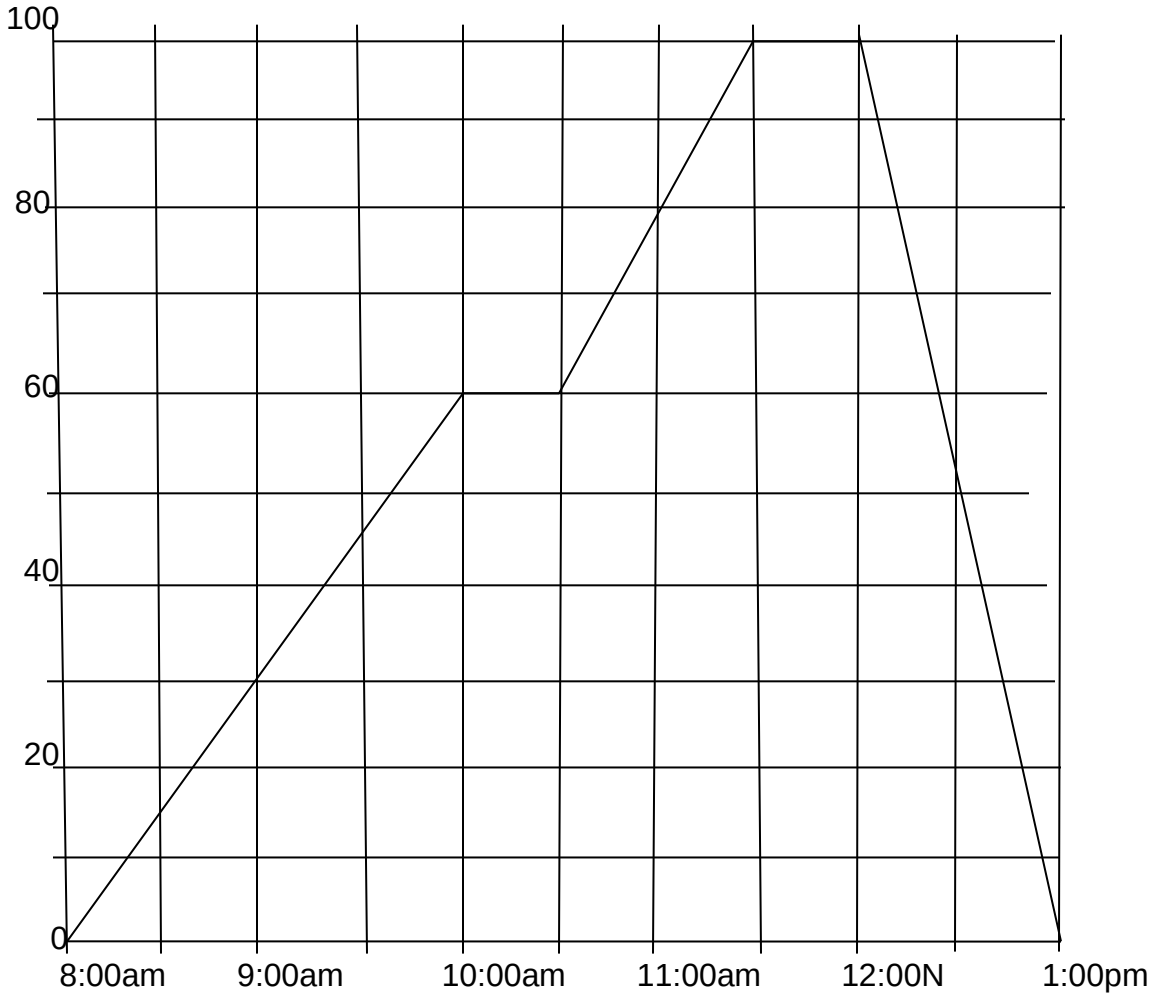
Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON THREE AND FOUR

INTERPRETING DRAWN TRAVEL GRAPHS

The travel graph below shows a journey of a motorist, use it to answer questions that follow.



a. At what time did the motorist leave town B?

At 9:30am

For how long was the motorist at B?

For 30minutes or ½hr

c. What was the motorist's speed between town A and B?

Solution

$S = \frac{D}{T}$

= 60KM ÷1 ½ HRS

= 60km ÷3/2hrs

= 60km x 2/3 hrs
= 20km x 2
1hr
= 40km/hr

d. Calculate the motorist's total distance for the whole journey.
100km + 100km
200km

f. What was the total rest time?
30min + 30min
60minutes = 1hr

g. Find the motorist's average speed for the whole journey.
A.S = TD
TT
= 200km
5hrs
= 40km/hr

3. Find the motorist's average speed of the whole journey while traveling
Total distance = 200km
Total time = 4hrs
Average speed while travelling = 200km
4hrs
50km/hr

REFERENCES

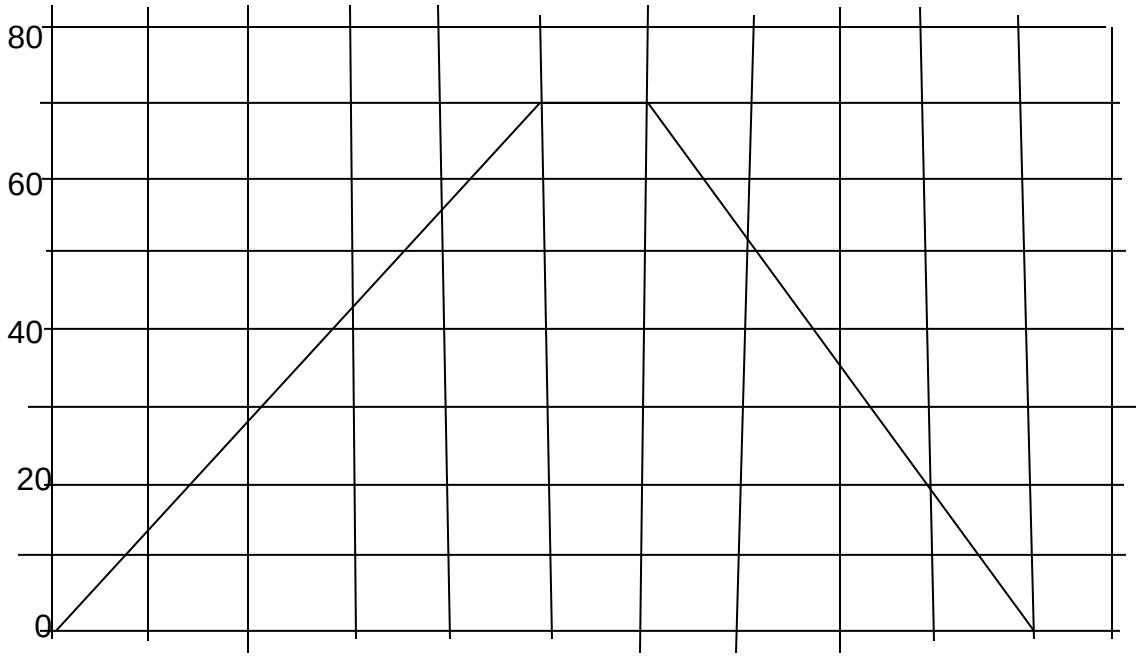
Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON FIVE

DRAWING TRAVEL GRAPHS

1. A Bus left x and 7:00am for town y, it travelled for 2hrs at an average speed of 40km/hr from x to y, it stayed at y for 30minutes before returning to x arriving at 12:00Noon. Draw a travel graph to show the movement of the bus.



Distance = S x T

= 40km x 2hrs

H

= 80km

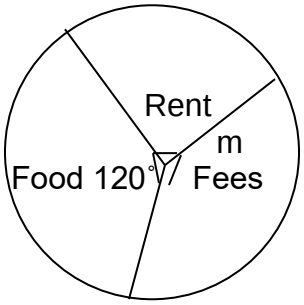
REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

WEEK THREE
LESSON ONE AND TWO
PIE CHARTS

1. The pie chart below represents Mugisha's monthly expenditure and saving. If he earns sh 72000;



(a) How much does he spent on fees ?

Solution

M + 90 + 120 = 360˚

M + 210 = 360˚

M + 210 – 210 = 360˚ – 210˚

M = 150˚

Fees

150 x 72000/=
360˚

15 x 2000/=

30000/=

(b) What percentage of his salary is spent on food?

Solution

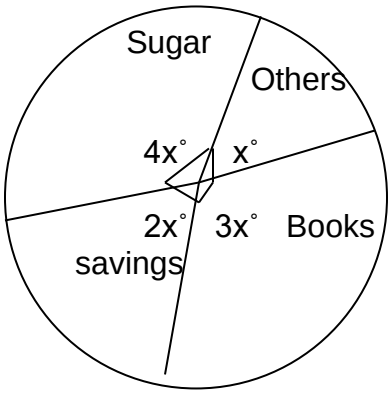
$= \frac{120}{360} \times 100\%$

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

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

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

2. Kironde was given sh. 12000 for his pocket money and spent it as below .



(a) Find the value of x

Solution

$4x + 3x + 2x + x = 360^\circ$

$\frac{10x}{10} = \frac{360^\circ}{10}$

X = 36˚

(b) How much does he save?

Savings = 2x

= 2 x 36˚

= 72˚

$= \frac{72 \times}{360}$ 12000/=

= 2 x 1200

= 2400/=

(c) How much does he spend on sugar than on books

Solution

Sugar = 4x = 4 x 36 = **144**

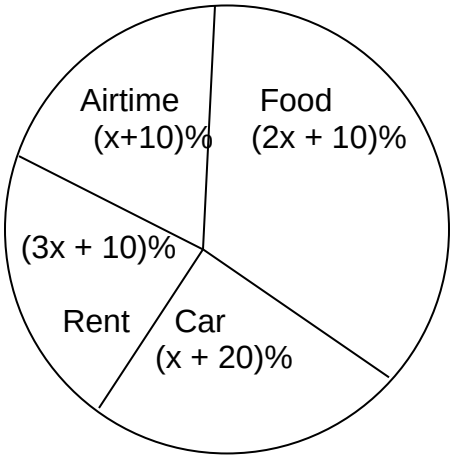
Books = 3x = 3 x 36 = **108**

Difference = 144 – 108 = **36**

$= \frac{36 \times}{360}$ 12000/=

= **1200/= more**

3. The pie chart below represents the expenditure of a family.



(a) Find the value of x.

$x + 10 + 3x – 10 + x + 20 + 2x + 10 = 100\%$

$x + 3x + x + 2x + 10 + 20 + 10 – 10 = 100\%$

$7x + 30\% = 100\%$

$7x + 30 – 30 = 100\% - 30\%$

$\frac{7x}{7} = \frac{70\%}{7}$

x = 10%

(b) If the family spends sh 40000 more on car than on rent, find the family's total expenditure.

%ge of car	%ge of rent	difference in %ge
x + 20%	3x – 10%	320% - 20%
10% + 20%	3 x 10% - 10%	**10%**
10% + 30%	30% - 10%	
30%	**20%**	

Total expenditure % = 100%

10% represents sh. 40000/=

10% represents sh. $\frac{40000}{10}$

100% represents 100 x 4000/=

400,000/=

REFERENCES

Fountain primary maths Book 7 pages 177 to 198

MK Book 7 pages 164 to 188

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Macmillan Book 7 pages 112 to 138

Functional math Book 7 pages 155 to 169

LESSON THREE AND FOUR

DRAWING PIE CHARTS GIVEN FRACTIONS AND PERCENTAGES

1. Victor spends ¼ of his income on rent, 4/9 of the remainder on food and saves he rest.

(a) What fraction does he save?

Solution

Fraction for rent = ¼

Remaining fraction = $\frac{4}{4} - \frac{1}{4}$

$\frac{\mathbf{3}}{\mathbf{4}}$

Fraction for food = $\frac{4}{9} \times \frac{3}{4}$

$\frac{\mathbf{1}}{\mathbf{3}}$

Fraction for savings = $\frac{3}{3} - \frac{1}{3}$

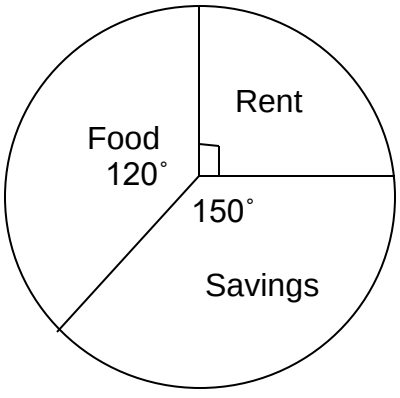
$= \frac{9 - 4}{12}$

$\mathbf{= \frac{5}{12}}$

(b) Using the above information, draw an accurate pie chart.

Solution

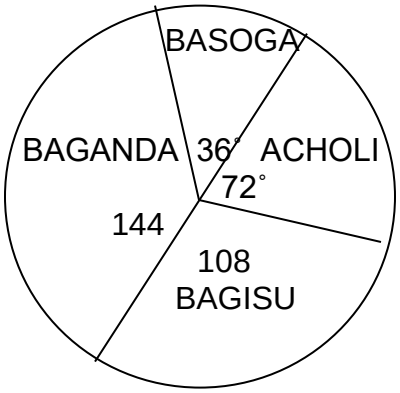
Rent	**food**	**savings**
$\frac{1}{4} \times 360$	$\frac{1}{3} \times 360$	$\frac{5}{12} \times 360$
90˚	**120˚**	**150˚**



2. In a certain town, 40% of the population are Baganda, 10% are Basoga, 30% are Bagisu and the rest are acholi. Draw an accurate pie-chart for the above information.

Solution

Baganda	Basoga	Bagisu	Acholi
40 x 360	10 x 360	30 x 360	360 – (144 + 36 + 108)
100	100	100	360 – 288
4 x 30	1 x 36	3 x 36	72˚
144˚	36˚	108˚	



REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

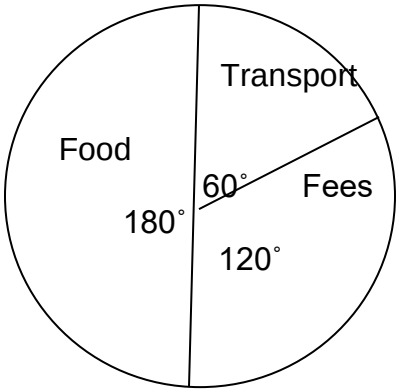
LESSON FIVE

DRAWING PIE CHARTS GIVEN QUANTITIES

Nambooze spends her monthly salary as follows ;
sh. 12,000 on school fees
sh. 6000 on transport and
sh. 18,000 on food

Draw an accurate pie chart for this information

Total expenditure	Fees	Transport	Food
Sh. 12,000	12000/= x 360	6000/= x 360	18000/= x 360
Sh. 6000	36000	36000	36000
Sh. 18000			
Sh. 36000	**120˚**	**60˚**	**180˚**



REFERENCES

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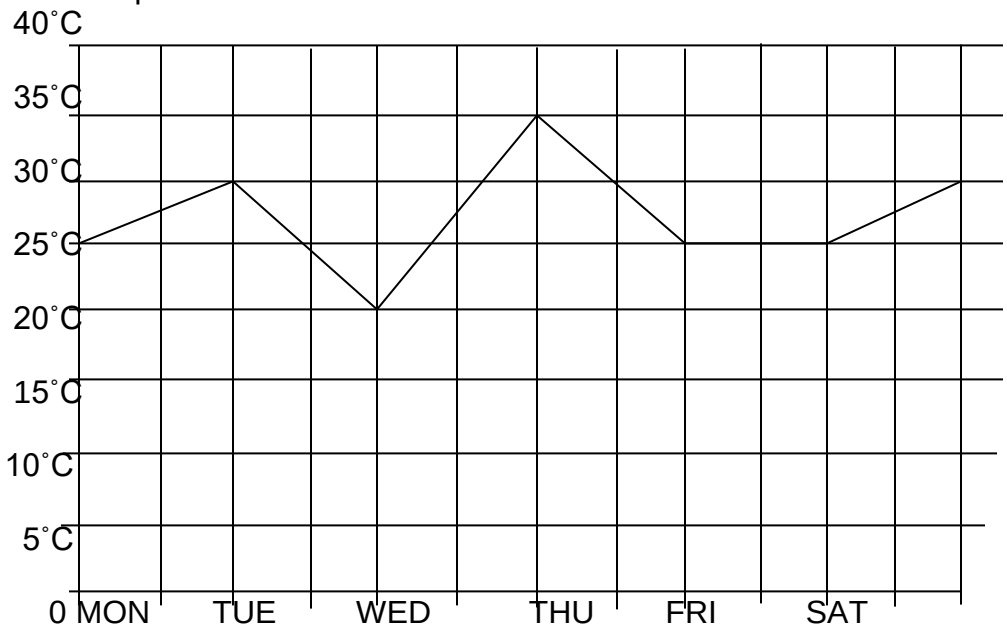
Functional math Book 7 pages 155 to 169

WEEK FOUR
LESSON ONE AND TWO

TEMPERATURE GRAPHS

The graph below represents the maximum temperatures of the week. Study it and use it to answer questions that follow



(a) What was the highest temperature of the week?
35ºC

(b) Which day had the lowest temperature?
Wednesday

(c) What was the drop in temperature between Tuesday and Wednesday?
30˚C-20˚C=10˚C

(d) Calculate the average temperature for the whole week.

$$\frac{25 + 30 + 20\ 35 + 25 + 25 + 27.5}{7}$$

$$\frac{190}{7}$$

27 $\frac{1}{7}$˚C

REFERENCES

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LESSON THREE

APPLICATION OF MEAN

1. The mean age of 5 children is 12years, if a sixth child joins them, the mean age becomes 11years, find the age of the 6th child.

Solution

Total age of 5 children = 5 x 12
= 60yrs

Total age of 6 children = 6 x 11
= 66yrs

Age of 6th child = (66 - 60) yrs
= 6yrs

2.The average age of 6 boys is 13years. If one boy leaves the group, the average age becomes 14 years.
Find the age of the sixth boy.

Total age of 6boys = 6 x 13yrs
= 78yrs

Total age of 5boys = 5 x 14
= 70

Age of the 6th boy = (78 - 70)yrs
= 8yrs

3The average weight of 6pupils is 40kg; the average weight of other 4 pupils is 30kg. find the average weight of all the pupils

Solution

Total weight of 6 pupils = 6 x 40kg

= 240kg

Total weight of 4 pupils = 4 x 30kg

= 120kg

Total weight of 10 pupils = (120 + 240) kg

= 360kg

Average weight of pupils = $\frac{360kg}{10}$

= 36kg

REFERENCES

Fountain primary maths Book 7 pages 177 to 198
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Functional math Book 7 pages 155 to 169

LESSON FOUR AND FIVE

FORMING AND SOLVING EQUATIONS INVOLVING MEAN

1. The mean of y + 1, 5 and y is 6. Find the value of y.

Solution

$\frac{(y + 1) + 5 + y}{3} = 6$

$\frac{Y + y + 5}{3} = 6$

$3 \times \frac{2y + 6}{3} = 6 \times 3$

$2y + 6 = 6 \times 3$

$2y + 6 – 6 = 18 – 6$

$\frac{2y}{2} = \frac{12}{2}$

y = 6

2. The average of a, a-7, 3 and 2a is 8.

(a) Find the value of a.

Solution

$\frac{a + a + 3 + 2a + 3 – 7}{4} = 8 \times 4$

$\frac{4 \times(a + a + 2a + 3 – 7)}{4} = 8 \times 6$

$4a – 4 = 32$

$4a – 4 + 4 = 32 + 4$

$\frac{4a}{4} = \frac{36}{4}$

a = 9

(b) Find the range

Solution

a = 9

a – 7 = 9 – 7

= 2

2a = 2 x a

= 2 x 9

= 18

Range = 18 – 2

= 16

REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

WEEK FIVE

LESSON ONE

PROBABILITY

Probability of success and failure.

1. The probability that peter will pass his examinations is 2/7. what is the probability that he will not pass his examinations?
   Solution
   $1 - \frac{2}{7}$
   $\frac{7}{7} - \frac{2}{7}$
   $\frac{5}{7}$

2. In a tin there are 30 blue and red pens. If the probability of picking a red pen is 3/5, how many red pens are in the tin?
   No of red pens = $\frac{3}{5} \times 30$
   = 3 x 6
   = 18

REFERENCES

Fountain primary maths Book 7 pages 177 to 198
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LESSON TWO
Probability when two teams play

In a football match a team will either win, draw or lose a game.

a. What is the probability that a team wins the game?
   No of total chances = 3
   No of desired chances = 1
   Probability (win) $\frac{1}{3}$

b) Find the probability that a team draws the match.
   No of total chances = 3
   No of desired chances = 1
   Probability (draw) = $\frac{1}{3}$

c) What is the probability of a team losing a match?

REFERENCES
Fountain primary maths Book 7 pages 177 to 198
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Functional math Book 7 pages 155 to 169

LESSON THREE
Tossing one coin.

If one coin is tossed, what is the probability of getting a head on top?
A coin has two sides the head (H) and the tail (T)
The head has the coat of arms
The tail is either a cow, fish or crane head.
Solution
Possible out comes = (H, T)
Number of possible out comes = 2
Expected out comes = (H)
Number of expected out comes = 1
Therefore probability = $\frac{n(E)}{n(D)}$
$\frac{1}{2}$

REFERENCES
Fountain primary maths Book 7 pages 177 to 198
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Functional math Book 7 pages 155 to 169

LESSON FOUR

Tossing two coins.

If two coins are tossed once, what is the probability of two heads showing up?

		H	T
2nd Coin	H	HH	HT
	T	TH	TT

Total chances = (HH, HT, TH, TT)
No of Total Chances = 4
Desired chances = (HH)
No of desired chances = 1

Prob (HH) = No of desired chances / N o of total chances
= ¼

REFERENCES

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MK Book 7 pages 164 to 188
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LESSON FIVE

Tossing one die.

When a die is rolled once, what is the probability of getting an even number?
Total chances = {1, 2, 3, 4, 5, 6 }
Number of total chances = 6
Desired chances = {2, 4, 6}
Number of desired chances = 3
Therefore probability = No of desired chances / No of total chances
= 3/6 or 1/2

REFERENCES

Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189
Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

WEEK SIX
LESSON ONE AND TWO
Tossing two dice.
Calculate the probability of scoring a total of 8 when two dice are tossed at once

Die A	1	2	3	4	5	6
1	1, 1	1, 2	1, 3	1, 4	1, 5	1, 6
2	2,1	2,2	2,3	2,4	2,5	2,6
3	3,1	3,2	3,3	3,4	3,4	3,6
4	4, 1	4,2	4,3	4,4	4,5	4,6
5	5,1	5,2	5,3	5,4	5,5	6,6
6	6,1	6,2	6,3	6,4	6,5	6,6

Total chances = 36
Desired chances = 5
Probability = $\frac{5}{36}$

REFERENCES
Fountain primary maths Book 7 pages 177 to 198
MK Book 7 pages 164 to 188
Understanding math Book 7 pages 153 to 189

Macmillan Book 7 pages 112 to 138
Functional math Book 7 pages 155 to 169

LESSON THREE
CIRCLES
Parts of a circle

1. Radius – line drawn from the centre to circumference.
2. Diameter – a line passing through the centre from circumference to circumference.
3. Arc – part of the circumference.
4. Circumference – distance round a circle.
5. Chord – straight line joining circumference to circumference.
6. Sector – an area of a circle bounded by two radii and arc.
7. Semi-circle – half a circle.
8. Quadrant – quarter circle.

RELATIONSHIP BETWEEN RADIUS AND DIAMETER

1. Find the diameter of a circle whose radius is

a) 10m

Solution

Diameter = 2R

= 2 x R

= 2 x 10m

= 20m

(b) 1 3/4m

solution

Diameter = 2R

= 2 x R

= 2 x 1 3/4m

= 2 x 7/4m

= 3 ½m

2. Find the radius of a circle whose diameter is

a) 30cm

R = Diameter / 2

30cm / 2

15cm

(b) 1 3/4 dm

R = D ÷ 2

= 1 3dm÷2 / 4 1

= 7dm x ½ / 4

= 7dm

LESSON FOUR **8**

CIRCUMFERENCE OF A CIRCLE

1. Find the circumference of a circle whose diameter is

(a) 7cm.(use as 22/7)

$\overline{II}$ D

22 x 7cm / 7

= 22cm

(b) 10cm use pi as 3.14

C = $\overline{II}$ D

= 3.14 x 10cm

= 314 x 10cm / 100

= 314cm / 10

= 31.4 cm

2. Find the circumference of a circle whose radius is

(a) 7cm (use $\overline{II}$ = 22/7)

C = 2 $\overline{II}$ R

2 x 22 x 7cm / 7

= 44cm

(b) $\overline{II}$ =3.14)

C = 2 $\overline{II}$ R

= 2 x 3.14 x 20m / 100

= 2 x 314 x 20m / 100

= 628 x 2m / 10

= 1256m

10
= 125.6m

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FIVE

FINDING RADIUS AND DIAMETER GIVEN CIRCUMFERENCE

1. The circumference of a circle is 44cm. Find the diameter of the circle. (use pi as 22/7)

Solution

$\pi D = C$

$\frac{22}{7}D = 44cm$

$7 \times \frac{22D}{7} = 44cm \times 7$

$\frac{22D}{22} = \frac{44cm}{22} \times 7$

$D = 2cm \times 7$

D = 14cm

2.Calculate the radius of a circle whose circumference is 44m.

Solution

$2\pi R = C$

$2 \times \frac{22}{7} \times R = 44m$

$7 \times \frac{44R}{7} = 44m \times 7$

$\frac{44R}{44} = \frac{44m}{44} \times 7$

R = 7m

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
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Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

WEEK SEVEN

LESSON ONE AND TWO

FINDING NUMBER OF POLES AND SPACES

1. How many posts of 1.5m a part are needed to erect a circular hut of diameter 21m.

$C = \pi D$

$= \frac{22}{7} \times 21m$

= 66m

No if posts $= \frac{66m}{1.5m}$

$= 66 \div \frac{15}{10}$

$= 66 \times \frac{10}{15}$

$\frac{66 \times 10}{15}$

$\frac{22 \times 2}{}$

= 44posts

2. 11 Posts were fixed a distance of 4 meters a part to make a circular fence.

(a) Calculate the total distance a round the fence.

Solution

No of spaces = 11

Total distance = 11 x 4m

= 44m

(b) calculate the radius of the fence.

Solution

$2\overline{\text{II}}\ R = C$

$2 \times \frac{22}{7} \times R = 44m$

$7 \times \frac{44R}{7} = 44m \times 7$

$\frac{44R}{44} = \frac{44m \times 7}{44}$

R = 7m

REFERENCES

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Functional math Book 7 pages 228 to 235

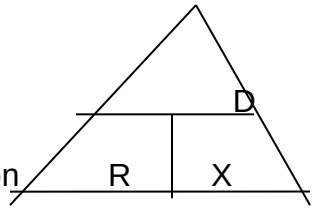
LESSON THREE AND FOUR

APPLICATION OF CRIRUCMUFRERENCE (REVOLUTIONS)

Finding distance covered by circular objects in given number of revolutions.

1. A wheel is 35cm in diameter. What distance does it cover in

a) One complete revolution?



Distance /Length

Devolution C Circumference

Rotation

Number of turns

Solution

Distance = Circumference x Revolutions

But circumference = πD

$= \frac{22}{7} \times 35cm$

$= 22 \times 5cm$

$= 110cm$

Distance = 110cm x 1 Revol

= 110cm

b) 50 complete revolutions

Solution

Circumference = πD

$= \frac{22}{7} \times 35cm$

$= 110cm$

No Distance = C x Revolution

= 110cm x 50

= 5500cm

Finding number of revolutions.

Revolutions = $\frac{\text{Distance}}{\text{Circumference}}$

2. How many revolutions does a wheel of diameter 56cm make to cover a distance of 1760cm? ($\pi = \frac{22}{7}$)

Solution

No of rev. $= \frac{\text{Distance}}{\text{Circumference}}$

But circumference = πD

$= \frac{22}{7} \times 56cm$

$= 22 \times 8cm$

$= 176cm$

No of Rev $= \frac{1760cm}{170cm}$

= 10 Revolutions

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FIVE

FINDING DIAMETER/RADIUS

3. The length of a wire is 176m. if the wire is wound around a cylindrical tin 4 times, find the diameter of the tin. (use $\pi = \frac{22}{7}$)

Solution

Circumference = $\frac{\text{Length of wire}}{\text{No of times}}$

$= \frac{176m}{4}$

= 44mm

$\pi D = C$

$22D = 44m$

$7 \times \frac{22D}{7} = 44m \times 7$

$\frac{22D}{22} = \frac{44m}{22} \times 7$

D = 14m

REFERENCES

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MK Book 7 pages 366 to 393

Understanding math Book 7 pages 192 to 197

Functional math Book 7 pages 228 to 235

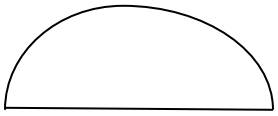
WEEK EIGHT

LESSON ONE AND TWO

FINDING LENGTH OF ARCS OF SEMI CIRCLES AND PERIMETER OF SEMI CIRCLES

Length of arc = $\frac{1}{2} \pi D$

1. Find the length of the arc of the semicircle below.



14m

Solution

Length of arc = $\frac{1}{2} \pi D$

$= \frac{1}{2} \times \frac{22}{7} \times 14m$

$= 11 \times 2m$

= 22m

2. What is the distance around the semi-circle below (use $\pi = \frac{22}{7}$)

Perimeter = (½ π D) + D

= (½ x $\frac{22}{7}$ x 7m) + 7m

= 11m + 7m

= 18m

REFERENCES

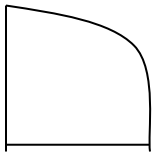
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON THREE AND FOUR

LENGTH OF ARC AND PERIMETER OF QUADRANTS

Length of arc = ¼ 2 π R

1. Find the length of the arc of the figure below.



Length of arc = ¼ x 2 π R

= ¼ x $\frac{22}{7}$ x 14mx2

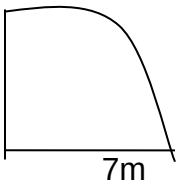
= 11 x 2

= 22m

Perimeter of a quadrant = (¼ x 2 π R + 2R)

=(¼ X 2 x $\frac{22}{7}$ x 14)+(2x14m)

2. Calculate the distance around the figure below.
(USE TL as $\frac{22}{7}$)



Perimeter = (¼ x 2 π R) + 2R

= ¼ x 2 x $\frac{22}{7}$ x 7) + (2 x 7m)

= 11m + 14m

= 25m

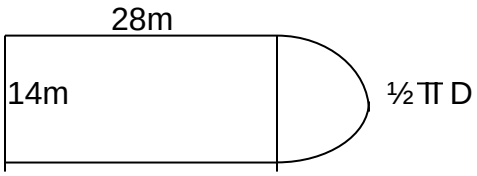
REFERENCES

Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FIVE

DISTANCE ROUND COMBINED SHAPES

1. **Find the perimeter of the figure below.**



SOLUTION

Length of arc = ½ TLD

= ½ x 22/7 x 14m

= 22m

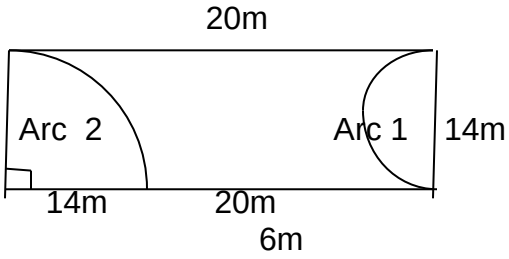
Perimeter = 22m + 28m + 14m + 25m

= (50 + 42) m

= 92m

2. Find the distance around the shaded part .

Solution



Length of arc	Arc 2	Perimeter
½ ΠD	¼ x 2 ΠR	22m + 22m + 20m + 6m
½ x 22/7 x 14m	¼ x 2 x 22/7 x 14m	44m + 26m
22m	**22m**	**70m**

REFERENCES

Fountain primary maths Book 7 pages 351 to 383

MK Book 7 pages 366 to 393

Understanding math Book 7 pages 192 to 197

Functional math Book 7 pages 228 to 235

WEEK NINE
LESSON ONE

AREA OF A CIRCLE

Area of a circle = πR^2

1. Calculate the area of a circle whose radius is 7m.
   (Use π as $\frac{22}{7}$)

   Area $= \pi R^2$
   $= \frac{22}{7} \times 7m \times 7m$
   $= 154m^2$

2. Find the area of a circle whose diameter is 28cm.
   (Use $\pi = \frac{22}{7}$)

   Solution

   Area $= \pi R^2$
   $= \frac{22}{7} \times \frac{28cm}{2} \times \frac{28cm}{2}$
   $= 22 \times 14cm \times 2cm$
   $= 22 \times 28cm^2$
   $= 616cm^2$

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON TWO AND THREE

FINDING AREA OF A CIRCLE GIVEN CIRCUMFERENCE

1. calculate the area of a circle whose circumference is 44dm.
   (Use $\pi = \frac{22}{7}$)

   Procedure

   i. Use given circumference to find radius
      $2\pi R = C$
   ii. Use the radius to find area
      Area $= \pi R^2$

Solution

Radius of the circle

Area $2\pi R = C$

$2 \times \frac{22}{7} \times R = 44dm$

$7 \times \frac{44}{7} \times R = 44dm \times 7$

$\frac{44R}{44} = \frac{44dm}{44} \times 7$

R = 7dm

Area of circle

Area $= \pi R^2$

$= \frac{22}{7} \times 7dm \times 7dm$

$= 22dm \times 7dm$

$= 154dm^2$

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
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Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FOUR

FINDING RADIUS OF A CIRCLE GIVEN AREA

Find the radius of circle whose area is $154m^2$.
(Use $\pi = \frac{22}{7}$)

Solution

$\pi R^2 = Area$

$\frac{22}{7} \times R^2 = 154m$

$7 \times \frac{22R^2}{7} = \frac{154m}{22} \times 7$

$\sqrt{R^2} = \sqrt{49m^2}$

R = 7m

REFERENCES

Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
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Functional math Book 7 pages 228 to 235

LESSON FIVE

FINDING CIRCUMFERENCE WHEN AREA IS GIVEN

STEPS TAKEN

1. Use the given area to find radius
   $\pi R^2 = AREA$

2. Use the radius to find circumference

$C = 2\pi R$

Question
The area of a circle is 154cm². Find the circumference of the circle .
(Use π as $\frac{22}{7}$)

Solution
Radius of the circle
πR^2 = Area
$\frac{22R^2}{7} = 154cm^2$
$7 \times \frac{22R^2}{7} = 154cm \times 7$
$\sqrt{R^2} = \sqrt{49}cm^2$
R = 7cm

circumference
$C = 2\pi R$
$= 2 \times \frac{22}{7} \times 7cm$
= 44cm

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
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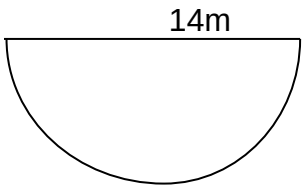
Functional math Book 7 pages 228 to 235

WEEK TEN
LESSON ONE
FINDING AREA OF SEMI-CIRCLES

1. Find the area of a semi circle whose radius is 21dm.
   (Use π as $\frac{22}{7}$)

   Solution
   Area $= \frac{1}{2} \pi R^2$
   $= \frac{1}{2} \times \frac{22}{7} \times 21m \times 21m$
   $= 11 \times 16m^2$
   = 693m²

2. Calculate the area of the semi-circle below
   (Use $\pi = \frac{22}{7}$)



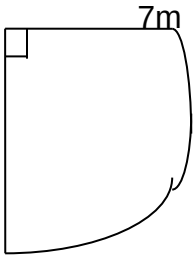
Area $= \frac{1}{2} \pi R^2$
$= \frac{1}{2} \times \frac{22}{7} \times 14m \times 14m$
= 77m²

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393

Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON TWO

FINDING AREA OF QUADRANTS
Calculate the area of the quadrant below
(Use $\pi = \frac{22}{7}$)

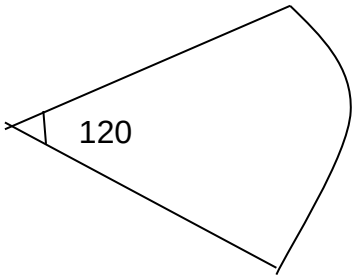


Area $= \frac{1}{4} \times \pi R^2$
$= \frac{1}{4} \times \frac{22}{7} \times 7m \times 7m$
$= \frac{77}{2} m$

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

$= 38\frac{1}{2}m^2$

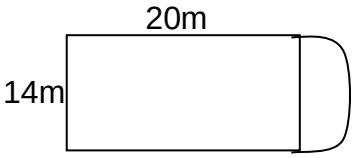
LESSON THREE
AREA OF OTHER SECTORS
Find the area of the sector below
(Use $\pi = \frac{22}{7}$)



Area $= \frac{120}{360} \times \pi R^2$
$= \frac{1}{3} \times \frac{22}{7} \times 21cm \times 21cm$
$= 22 \times 21cm^2$
$= 462cm^2$

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FOUR
AREA OF COMBINED SHAPES

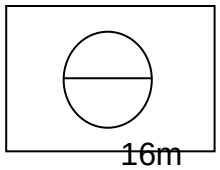


Area of rectangle	Area of semicircle	Total area
L x W	½ x 22/7 x 14/7 x 14/7	280m²
20m x 14m	77m	+ 77m²
280m²		357m²

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

LESSON FIVE
AREA OF SHADED PORTIONS

1. Find the area of the shaded region



Area of whole figure
Area = L x W
= 16m x 15m
=240m²

Area un shaded
Area = $\overline{11}$ R²
= 22/7 x 14m/7 x 14m/7
= 154m²

Area shaded
Area = 240m
- 154m²
86m²

2. Find the area of the shaded portion
(use $\overline{11}$=22/7)

REFERENCES
Fountain primary maths Book 7 pages 351 to 383
MK Book 7 pages 366 to 393
Understanding math Book 7 pages 192 to 197
Functional math Book 7 pages 228 to 235

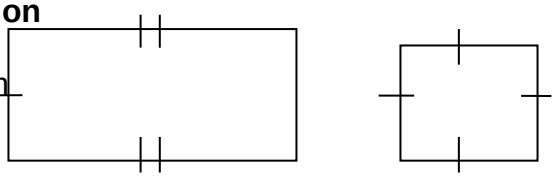
WEEK ELEVEN
LESSON ONE

MORE ABOUT AREA

1. A rectangular floor measures 400cm by 300cm.
How many square tiles 50cm by 50cm are required to cover the floor?

Solution

300cm



No of tiles $= \frac{(L)}{S} \times \frac{(W)}{S}$

$= \frac{400cm}{50cm} \times \frac{300cm}{50cm}$

$= 8 \times 6$

$=$ ***48 tiles***

2. Abdul cut out circular plates of diameter 7cm from a rechangular. Sheet of metal of length 45cm and width 35cm.
   (Use $\pi = \frac{22}{7}$)

a) How many circular plate did he cut out

Solution

No of circular plates $= \frac{(L)}{D} \times \frac{(W)}{D}$

$= \frac{45cm}{7cm} \times \frac{35cm}{7cm}$

$= 6 \times 5$

= 30 plates

b) Find the area of the un used sheet after cutting out the circular plates.

Solution

Area Circular

$A = L \times w$

$45cm \times 35cm$

$1575cm^2$

Area of 30 Plates

$A = \pi r^2 \times 30$

$= \frac{22}{7} \times \frac{70cm}{2} \times \frac{7cm}{9} \times 50cm$

$= 11 \times 7cm^2 \times 15$

Area Un Used

$1575cm^2$

$1155cm^2$

$420cm^2$

$= 1155cm^2$

REFERENCES

Fountain primary maths Book 7 pages 351 to 383

MK Book 7 pages 366 to 393

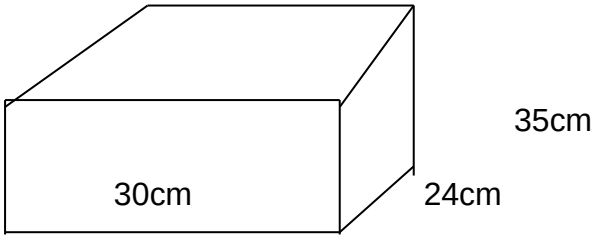
Understanding math Book 7 pages 192 to 197

Functional math Book 7 pages 228 to 235

LESSON TWO AND THREE
PACKING CUBES AND CUBOIDS IN BOXES

1. a box measures 24cm by 30cm and height of 35cm

(a) How many cubes of sides 4cm can fit into the box



No of cubes = L X W X h

$= \frac{30cm}{4cm} \times \frac{24cm}{4cm} \times \frac{35cm}{4cm}$

= 7 x 6 x 8

= 336 cubes

(b) Find the space left empty after packing all the cubes in the box.

Solution

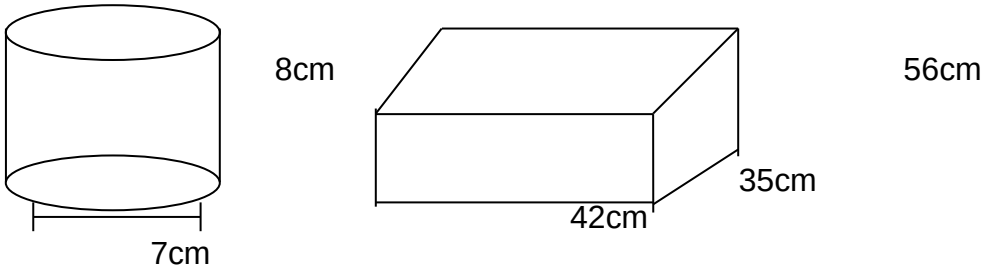
Volume of big box	**Volume of 336cubes**	**Space left**
Vol = L x W x h	Vol = S x S x S x 336	252400cm³
= 30cm x 24cm x 35cm	= 4cm x 4cm x 4cm x 336	- 21504cm³
= 720cm x 35cm	= 64cm x 336	
3696cm³		
= 25200cm	**= 21504cm³**	

REFERENCES

MK Book 7 pages 406 to 407

LESSON FOUR AND FIVE
PACKING TINS IN BOXES AND FINDING SPACE LEFT

1. How many tins (B) type can fit in Box (A)



No of tins $= \frac{(L)}{D} \times \frac{(W)}{D} \times \frac{(H)}{h}$

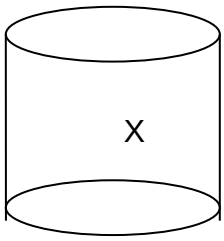
$= \frac{(42cm)}{7cm} \times \frac{(35cm)}{7cm} \times \frac{(56cm)}{8cm}$

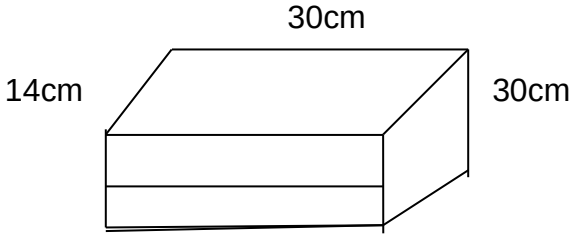
= 6 x 5 x 7

= 30 x 7

= 210 tins

2. Calculate the space left when tins (X) are packed in box (V)
(Use $\pi = \frac{22}{7}$)





No of tins that fit in the box = $\frac{S}{D} \times \frac{S}{D} \times \frac{S}{H}$

$= \frac{30cm}{5cm} \times \frac{30cm}{5cm} \times \frac{30cm}{14}$

= 6 x 6 x 2

= 36 x2

= 72 tins

Vol. of box = S x S x S

= 30cm X 30cm X 30cm

= $900cm^2$ x 30cm

= $27000cm^3$

Vol. of 72 tins = πR^2 X 72

= $\frac{22}{7}$ X $\frac{5cm}{2}$ x $\frac{5cm}{2}$ x 14cm x 72

= 11 x 5cm x $5cm^2$ x 72

= 55cm x 5cm x 72

= $275cm^3$ x 72

= $19800cm^3$

REFERENCES

MK Book 7 pages 406 to 407

WEEK TWELVE

LESSON ONE

FINDING VOLUME OF A CYLINDER

1. A cylindrical tin has radius of 7cm and height of 10cm.
Calculate its volume

Solution

Vol= πR^2h

= $\frac{22}{7}$ x 7cm x 7cm x 10cm

= 22cm x $70cm^2$

= $1540cm^3$

2. calculate the volume of a cylindrical tin whose height is 5cm and a diameter of 10cm (Use $\pi = 3.14$)

Solution

$$\text{Vol} = \pi R^2 h$$
$$= 3.14 \times \frac{10\text{cm}}{2} \times \frac{10\text{cm}}{2} \times 5\text{cm}$$
$$= \frac{314}{100} \times 5\text{cm} \times 5\text{cm} \times 5\text{cm}$$
$$= [\frac{(157 \times 5)\ \text{cm}^3}{}] \div 2$$
$$= \frac{785\text{cm}^3}{2}$$
$$= \mathbf{392\frac{1}{2}\text{cm}^3}$$

REFERENCES

Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

LESSON TWO

HOW TO FIND HEIGHT OR RADIUS WHEN VOLUME IS GIVEN

1. Calculate the height of a cylinder whose volume is 1694m^3, if a cylinder has a radius of 7m.

Solution

$\pi R^2 h = \text{vol}$

$\frac{22}{7} \times 7\text{cm} \times 7\text{cm} \times h = 1694\text{cm}^3$

$\frac{22 \times 1\text{cm} \times 7\text{cm}}{22 \times \text{m} \times 7\text{m}} \times h = \frac{1694\text{m} \times \text{m} \times \text{m}}{22 \times \text{m} \times 7\text{m}}$

$h = 11\text{m}$

2. Find the radius of a cylinder whose volume is 62.8cm and height 5cm. (Use $\pi = 3.14$)

Solution

$\pi R^2 h = \text{Vol.}$

$3.14 \times R^2 \times 5\text{cm} = 62.8\text{cm}$

$\frac{314}{100} \times 5 \times R^2 = 628\text{cm}$

$\frac{1570\text{cm}}{100} \times R^2 = \frac{628\text{cm}}{10}$

$10 \times \frac{157\text{cm}}{10} \times R^2 = \frac{628\text{cm}}{10} \times 10$

$\frac{157\text{cm}}{157\text{cm}} \times R^2 = \frac{628\text{cm}}{157\text{cm}}$

$R = \sqrt{\frac{628 \times cm \times cm \times cm \times cm}{157 \times cm}}$

R = 4cm

R = 2cm

REFERENCES

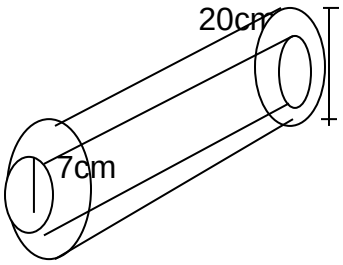
Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

LESSON THREE

SUBTRACTION OF VOLUME

1. The figure shows a cylindrical hollow pipe. Find the volume of the pipe. (Use $\pi = \frac{22}{7}$)

Solution



Vol. of whole figure (outer cylinder)

Vol. $= \pi R^2 h$

$= \frac{22}{7} \times \frac{14cm}{2} \times \frac{14cm}{2} \times 20cm$

$= 22 \times 7cm^2 \times 20cm$

$= 154cm^2 \times 20cm$

$= \mathbf{3080cm^3}$

Vol. of hollow (inner cylinder)

Vol $= \pi R^2 h$

$= \frac{22}{7} \times \frac{7cm}{2} \times \frac{7cm}{2} \times 20cm$

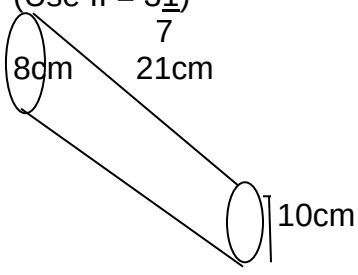
$= 11 \times 1cm \times 7cm \times 10cm$

$\mathbf{= 770cm^3}$

Vol of the pipe

$3080cm^3$
$- \underline{770cm^3}$
$\mathbf{2310cm^3}$

2. Below is a cylindrical piece of wood after frilling a hollow in it. (Use $\pi = \frac{31}{7}$)



(i) Find the volume of the materials removed to drill the hollow.

Solution

Vol = $\pi R^2 h$

= $\frac{22}{7} \times \frac{8cm}{2} \times \frac{8cm}{2} \times 21cm$

= $22 \times 4cm \times 4cm \times 3cm$

= $22 \times 48cm^3$

= $\underline{1056cm^3}$

(ii) What is the volume of the wooden cylinder left after drilling the hollow?

Solution

Vol of the whole wood = $\pi R^2 h$

= $\frac{22}{7} \times \frac{10cm}{2} \times \frac{10cm}{2} \times 21cm$

= $22 \times 5cm \times 5cm \times 3cm$

= $22 \times 75cm^3$

= $\underline{1650cm^3}$

Vol of wood left $1650cm^3$

$- 1056cm^3$

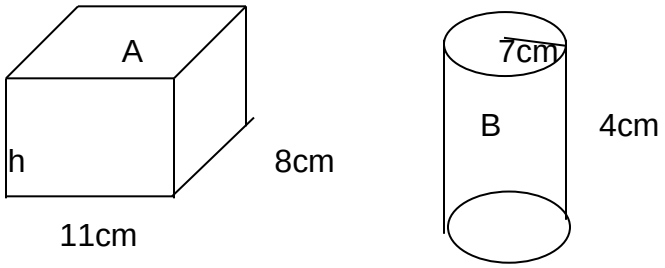
$\underline{\quad 1650cm^3}$

REFERENCE

Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

LESSON FOUR
COMPARING VOLUMES

1. the figures below have the same volume



(a) Find the height of A.

Solution

Vol. of B

Vol. = $\pi R^2 h$

$\frac{22}{7} \times 7cm \times 7cm \times 4cm$

$22cm \times 7cm \times 4cm$

$154cm^2 \times 4cm$

Height of A

L x W x h = Vol.

$11cm \times 8cm \times h = 616cm$ (same Vol as B)

$\frac{28cm \times 8cm \times h}{11cm \times 8cm} = \frac{616cm \times cm \times cm}{11cm \times 8cm}$

$\underline{h = 7cm}$

616cm³

2. A cylindrical tank full of water has a diameter of 28m and height of 20metres. Find the height of water which remains after removing 154m of water.

Solution

Volume of tant who full

Vol. = TLR^2h

= $\frac{22}{7} \times \frac{8cm}{2} \times \frac{28m}{2} \times 20m$

= 22 x 14m x 2m x 20m

= 308m 40m

= $12320m^3$

Vol of water that remains

$12320m^3$

$- 1540m^3$

$10780m^3$

Height of water left

TLRh = Vol of water left

$\frac{22}{7} \times \frac{28m}{2} \times \frac{28m}{2} \times h = 10780m^3$

$\frac{22 \times 14m \times 2m \times h}{22 \times 14m \times 2m} = \frac{10780m \times m \times m}{22 \times 4m \times 2m}$

h = 17½m

METHOD II

Height of the tank = 20m

Height of the water removed

πR^2h =Vol.

$\frac{22}{7} \times \frac{28m}{2} \times \frac{28m}{2} \times h = 1540m$

$\frac{22 \times 2m \times 14m \times h}{22 \times 2m \times 14m} = \frac{1540m}{22 \times 2m \times 14m}$

h = $\frac{5m}{2}$

h = 2 ½ m

Height of water which remains = 20m -2 ½ m

= 20 – 5

= 1 2

= $\frac{40m - 5m}{2}$

= $\frac{35m}{2}$

= **17 ½ m**

REFERENCES

Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

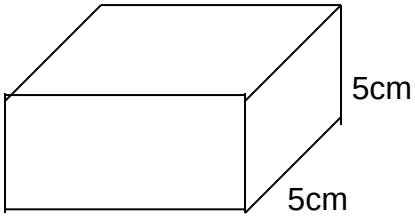
LESSON FIVE

VOLUME IN LITRES

1. calculate the volume of the figure below in Litres.

Solution

1 liter = 1000cc

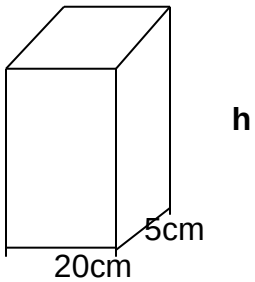


Vol in .c.c = L x W x h
= 20cm 5cm x 5cm
= 100cm x 5cm
= **500cm³**

Vol. in litres
IL = 1000cm
1000cm = IL
1cm = $\frac{1}{1000}$ L
500cm = 500 x $\frac{1}{1000}$ L
= $\frac{5\ L}{10}$
= **0.5L**

2. The tin below holds 2 Litres when completely filled with water. Find h.

Change 2c to cm³
1L = 1000cm³
2L = 2 x 1000cm³
= 2000cm³

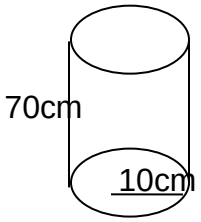


L x W x h = Vol
20cm x 5cm h 200cm³

20 x 5cm 20cm x 5cm
2000cm x cm x cm
20cm x 5cm
h = 20cm

3. Nanfuka filled a cylindrical tin whose radius is 10cm and height 70cm with passion juice. If she sells it at sh 600 per litre, how much money will she get after selling all the juice.

Solution



Vol. in cc
Vol = πLR^2h
= $\frac{22}{7}$ x 10cm x 10cm x 7cm
= 22 x 10cm x 10cm x 10m
= **$\underline{22000cm^3}$**

Vol. in litres
22000cc = $\frac{22000cc \times 1L}{1000cc}$
= 22litres

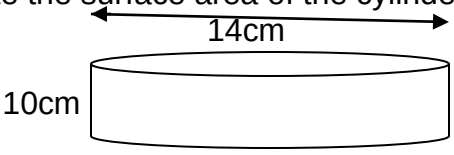
The cost of 22L
IL costs 600/=
22L cost 22 x 600/=
13200/=

REFERENCES
Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

TERM THREE
WEEK ONE
LESSON ONE

TOTAL SURFACE AREA OF ACYLINDER

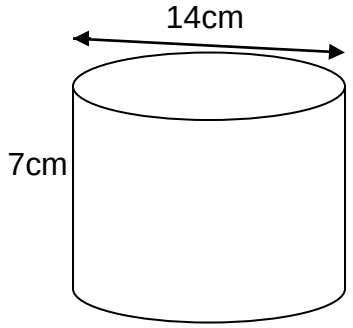
1. Calculate the surface area of the cylinder below.



Solution
T.S.A = $\pi R^2 + 2\pi Rh + \pi R^2$
= $(\frac{22}{7} \times \frac{14cm}{2} \times \frac{14cm}{2}) + (2 \times \frac{22}{7} \times \frac{14cm}{2}) \times 10cm + (\frac{22}{7} \times \frac{14cm}{2} \times \frac{14cm}{2})$

= 22 x 7cm² + 2 x 22cm x 10cm + 22 x 7cm²
= 154cm² + 440cm² + 154cm²
= **748cm²**

2. The diagram below shows a cylindrical tin without the top cover calculate its surface area.



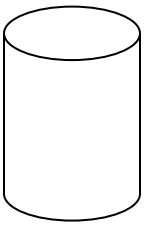
T.S.A = $\frac{22}{7}$ X $\frac{7cm}{2}$ x $\frac{7cm}{2}$ + 2 x $\frac{22}{7}$ x $\frac{7cm}{2}$ x 7cm

= $\frac{77cm^2}{2}$ + 154cm²

= 38 ½ cm² + 154cm²

= **192½ cm²**

3. Calculate the surface area of a hollow cylinder of radius 7cm and height 5cm. (Use $\pi = \frac{22}{7}$)



T.S.A = 2 x $\frac{22}{7}$ x 7cm x 5cm

= 44cm x 5cm

= **220cm²**

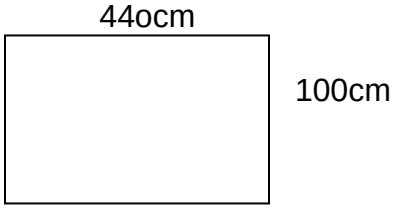
REFERENCES

Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

LESSON TWO AND THREE

MORE ABOUT VOLUME AND SURFACE AREA OF ACYLINDER

1. A welder was given a metal sheet with measurements as shown in the diagram below. He welded it into a hollow cylinder making the height 1000cm.
   (Use $\pi = \frac{22}{7}$)



(a) What is the surface of the metal needed to cover the bottom of the cylinder?

Radius

$2\pi R = C$

$2 \times \frac{22}{7} \times R = 440cm$

$7 \times \frac{44}{7} R = 440cm \times 7$

$\frac{44R}{44} = \frac{440cm}{44} \times 7$

$R = 70cm$

Area of metal needed to cover the bottom

Area πR^2

$\frac{22}{7} \times 70cm \times 70cm$

$22 \times 700cm$

$154cm$

Calculate the maximum volume of water the cylinder will hold.

Solution

Vol. in cc $= \pi R^2 h$

$= \frac{22}{7} \times 70cm \times 70cm \times 100cm$

$= 22 \times 70cm \times 1000cm^2$

$= \mathbf{1540000cm^3}$

Vol. in litres

$1000cm^3 = IL$

$1540cm^3 = \frac{1540000cm^3}{1000cm^3}$

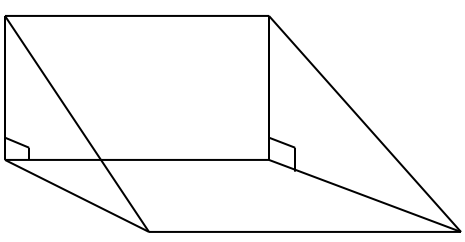
$= 1540Litres$

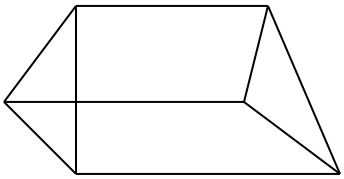
REFERENCES

Fountain primary maths Book 7 pages 409 to 411
MK Book 7 pages 405
Understanding math Book 7 pages 225 to 226
Functional math Book 7 pages 294

LESSON FOUR AND FIVE

A TRIANGULAR PRISM.

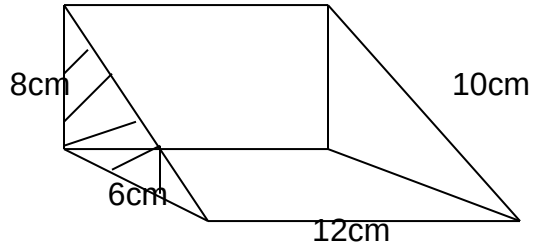




A triangular prism has a total of 5 faces.
Two faces of the triangular prism are triangular and three faces are rectangular.
It has 9 edges
It has got 6 vertices

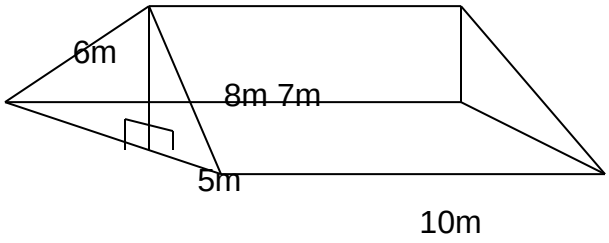
VOLUME OF TRIANGULAR PRISM
Vol. = Area of △ length of prism

Calculate the volume of the figure below.



Vol. = Area of △ x L
= (½ b x h) x L
= ½ x 6cm x 8cm x 12cm
= 3cm x 8cm x 12cm
= 24cm² x 12cm²
= **288cm³**

What is the volume of the prism below?



Vol =Area of triangle x length
= ½ x b x h x length
= ½ x 5m x 8m x 10m
= 5m x 4m x 10m
= 20m² x 10m
= **200m**^{3}

REFERENCES

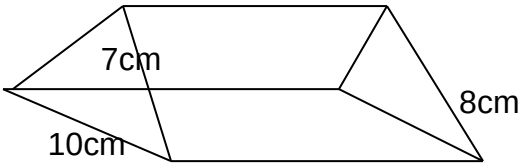
Fountain primary maths Book 7 pages 399 to 401
MK Book 7 pages 400 to 401
Understanding math Book 7 pages 207 to 211
Functional math Book 7 pages 293 to 294

WEEK TWO

LESSON ONE AND TWO

FINDING LENGTH,HEIGTHT OR BASE OF THE TRIANGULAR PPRISM GIVEN THE VOLUME.

1. The volume of the triangular prism below is $700cm^3$.
Find L.



Area of triangle x L = Vol.

½ x b x h x L = $700cm^2$

½ 10cm x 7cm x L = $700cm^3$

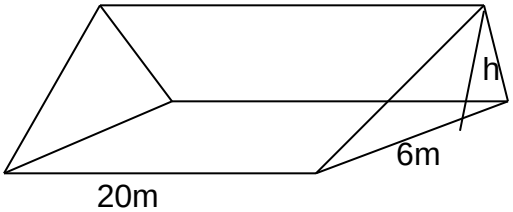
35cm x L = $700cm^3$

$\frac{35cm X\ L}{35cm} = \frac{700cm^3}{35cm}$

L = $\frac{700cm \times cm \times cm}{35cm \times cm}$

L = 20cm

2. Below is a triangular prism whose volume is $480m^3$.
Find h.



Area of D x L = Vol.

½ x b x h x L = $480m^3$

½ x 6m x h x 20m = $480m^3$

$\frac{3m \times 20m \times h}{3m \times 20m} = \frac{480m \times m \times m}{3m \times 20m}$

h = 8m

REFERENCES

Fountain primary maths Book 7 pages 399 to 401
MK Book 7 pages 400 to 401
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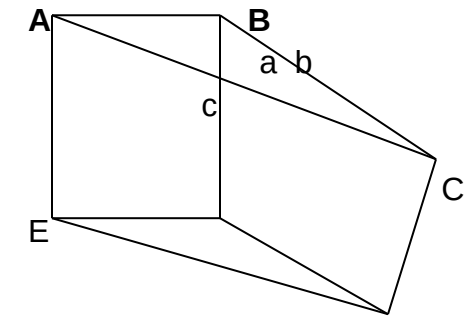
Functional math Book 7 pages 293 to 294

LESSON THREE

APPLICATION OF PYTHAGORAS THEOREM ON TRIANGULAR PRISMS

A. Use the figure below to answer questions that follow.



$a^2 + b^2 = c^2$ D

$a^2 + (6m)^2 = (10m)^2$

$a^2 + 6m \times 6m = 10m \times 10m$

$a^2 + 36m = 100m^2$

$a^2 + 36m^2 - 36m^2 = 100m^2 - 36m^2$

$\sqrt{a^2} = \sqrt{64m^2}$

$a = 8m$

AB = 8m

B. Find the volume of the prism.

Vol = Area of triangle x L

$= \frac{1}{2} \times b \times h \times L$

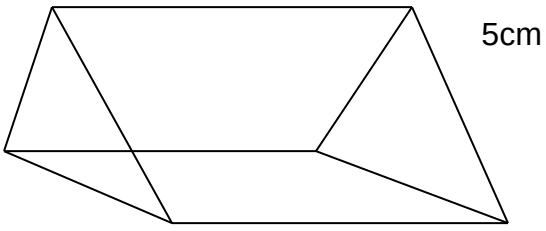
$= \frac{1}{2} \times 8m \times 6m \times 12m$

$= 4m \times 6m \times 12m$

$= 24m^2 \times 12m$

$= 288m^3$

3cm

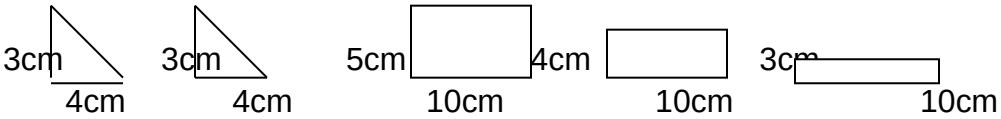


5cm

4cm

10cm

Solution



= (½ x 3cm x 4cm) x 2 + (5cm x 10cm) + (10cm x 4cm) + (10cxm x 3cm)

= $12cm^2 + 50cm^2 + 40cm^2 + 30cm^2$

= <u>132cm²</u>

<u>REFERENCES</u>

Fountain primary maths Book 7 pages 399 to 401
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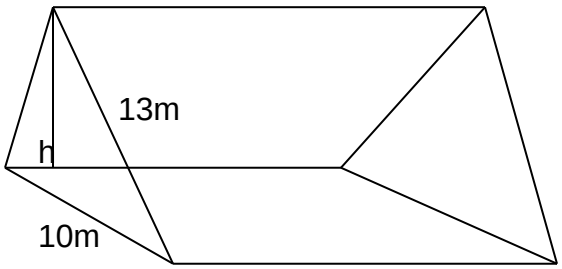
Functional math Book 7 pages 293 to 294

LESSON FOUR

Find the total surface area of the figure below,



20m

Solution

Value of h

6 + 6 = c

h + (5m) = (13m)

h + (5m x 5m) =13m + 13m

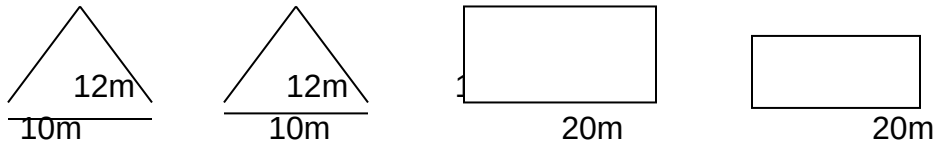
h + 25m = 169m

h + 25m – 25m = 169m -25m

h = 144m

<u>h = 12m</u>

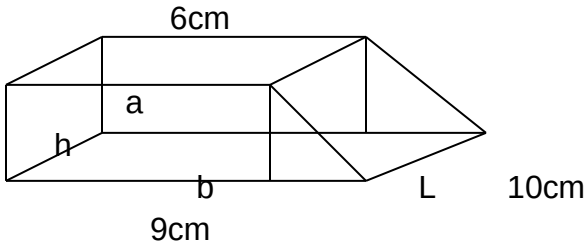
Surface area



= (½ x 10m x 12m x 2) + (20m x 13m) + (20m x 13m) + (20m x 10m)
= 120m² + 260m² + 260m² + 200m²
= 840m²

REFERENCES
Fountain primary maths Book 7 pages 399 to 401
MK Book 7 pages 400 to 401
Understanding math Book 7 pages 207 to 211
Functional math Book 7 pages 293 to 294

LESSON FIVE
VOLUME OF THETRAPEZOIDAL PRISM.



Vol = ½ h (a + b) x length
½ x 4cm (6cm + 9cm) x 10cm
2cm x 15cm x 10cm
30cm x 10cxm
300cm

REFERENCES
Fountain primary maths Book 7 pages 399 to 401
MK Book 7 pages 400 to 401
Understanding math Book 7 pages 207 to 211
Functional math Book 7 pages 293 to 294

WEEK THREE
LESSON ONE AND TWO
SPEED ,TIME AND DISTANCE.
AVERAGE SPEED
Average speed = total distance

$$\frac{}{\text{Total time.}}$$

A man covered 50km in2hours and another 5okm in 3hours.
Find his average speed for the whole journey.

Total distance = 50km + 50km
= 100km
Total time = 2hours + 3hours
= 5hours

Average speed = $\frac{100km}{5hrs}$
= 20km/hr

Calculate the average speed of a motorist who rode from X to YAT 60KM/hr for 3hr and continued to Z at 40km/hr for another 3hrs.

Solution
Distance from x to y = $\frac{60km}{1Hr} \times 3hr$
= 180km

Distance from y to z at 40km/hr for 3hrs = $\frac{40km \times 3hrs}{hr}$
= **120km**

Total distance from x to z = 180km + 120km
= **300km**

Total time = 3hrs + 3hrs
= **6hrs**

Average speed = $\frac{300km}{6hrs}$
= **50km/hr**

3.Nyangweso drove a distance of 40km at a speed of 20km/hr. Due to the bad road ,he show down speed to 15km /hr to cover 45km . Find the average speed for the whole journey.

Time taken at 20km/hr = $\frac{40km}{20km/hr}$

= 2hrs

Time taken at 15km/hr = $\frac{45km}{15km/hr}$

= 3hrs

Total distance covered = 40km +45km

= 85km

Total time taken = 2hrs + 3hrs

= 5hrs

Average speed = $\frac{total\ distance}{Total\ time}$

= $\frac{85km}{5hrs}$

= 17km/hr

REFERENCES

Fountain primary maths Book 7 page 426
MK Book 7 pages 411 to 423
Understanding math Book 7 pages 254 to 263
Primary math Book 7 pages 265 to 270
Functional math Book 7 pages 275 to 290
Supplementary math Book 8 pages 84 to 86

LESSON THREE

AVERAGE SPEED OF RETURN JOURNEYS

1.Lubwama drove at 55km/hr for 4 hours .if he returned following the same road at 11okm/hr, find his average speed for the whole journey.

Distance covered = 220km + 220km

= 440km

Total time taken = 4hrs + 2hrs

= 6hrs

Average speed = $\frac{440km}{6hrs}$

= 73 2/6km/hr

= 73 1/3km/hr

A and B are two towns a part. Lunyolo drove from A to B at 40km/hr and then returned to A though the same route at 60km/hr. calculate LAunyolo average speed for the whole journey.

Total taken to cover 80km at 40km/hr $= \frac{80km}{40km/hr}$

$= 2hrs$

Time taken to cover at 60km/hr $= \frac{80km}{60km/hr}$

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

Total distance from A and B and back $= 80km + 50km$

$= 160km$

$= 2hrs + 1\ 1/3hrs$

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

Average speed $= \frac{total\ distance}{Total\ time}$

$= 160km \div 3\ \frac{1}{3}hrs$

$= 160km \div \frac{10hrs}{3}$

$= 160km \times \frac{3}{10hrs}$

$= \frac{16km \times 3}{1hr}$

= **48km/hr**

REFERENCES

Fountain primary maths Book 7 page 426
MK Book 7 pages 411 to 423
Understanding math Book 7 pages 254 to 263
Primary math Book 7 pages 265 to 270
Functional math Book 7 pages 275 to 290
Supplementary math Book 8 pages 84 to 86

LESSON FOUR AND FIVE
AVERAGE SPEED INVOLVING STOPPAGES /RESTS.

Kato left town A driving at75km/hr . After 2hrs, his car got a puncture and he delayed for 45minutes. He then continued at 60km/hr for 2hours and 15minutes to town B.
a)What distance had kato covered before his car got a puncture?

Distance = S x T

$= \frac{75km}{1\ hr} \times 2hrs$

$= 75km \times 2$

$= 150km$

How far is town B from town A.

Distance coved after puncture = S x T

$= \frac{60km}{1\ Hr} \div 2\frac{1}{4}\ hrs$

$= 60km \times \frac{9}{4}$

$= 15km \times 9$

$= 135km$

Total distance = 150km + 135km

= 285km

b)Calculate Kato's average speed for the whole journey.

Solution

Total distance = 285km

$= 2hrs + \frac{45}{60}hrs + 2\ ¼\ hrs$

$= 2hrs + ¾\ hrs + 2\ ¼\ hrs$

2hrs + 2hrs + ¾ hrs + ¼ hrs

4hrs + 1hr

5hrs

Average speed = $\frac{\text{total distance}}{\text{Total time}}$

$= \frac{285km}{5hrs}$

= 57km/hr

Town R and S are 120km a part . Okiror drove from R starting at 10:30am ,he arrived at S where he stayed for 1hr and then returned to R through the same road at a speed of 60km/hr.

(a)At what time did okiror arrived at R from S.

Solution

Time taken from R to S = $\frac{120km}{60km/hr}$

=2 hours

Time he left S = 10 30am

+ 1 00

11: 30am

The time when he arrived at R = 11:30am

2:00

13:30 hr

1:30pm

a)calculate okiror average speed for the whole journey.

Solution

Time taken from R to S = 10:30am – 9:00am

Hrs	Min
10	30
- 9	00
1	30

= 1hrs 30 minutes

= 1 ½ hrs

Total time = 1 ½ hrs + 2hrs + 1hr

= 4 ½ hrs

Total distance = 12okm + 120km

= 240km

Average speed $= \frac{\text{total distance}}{\text{total time}}$

$= 240\text{km} \div 4\frac{1}{2}\text{ hrs}$

$= 240\text{km} \div \frac{9}{2}$

$= 240\text{km} \times \frac{2}{9}$

$= 480\text{km} \div 9\text{hrs} \qquad = 53\frac{1}{3}\text{ km/hr}$

c)calculate okiror's average speed for the whole journey while travelling.

Total distance = 240km

Total time = 1 ½ hrs + 2hrs

= 3 ½ hrs

Average speed $= 240\text{km} \div 3\frac{1}{2}\text{ hrs}$

$= 240\text{km} \div \frac{7}{2}\text{ hrs}$

$= 240\text{km} \times \frac{2}{7}\text{ hrs}$

$= \frac{480\text{km}}{7\text{hrs}}$

$= 68\frac{4}{7}\text{ km/hr}$

REFERENCES

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Functional math Book 7 pages 275 to 290
Supplementary math Book 8 pages 84 to 86