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*"Quest for excellence"*

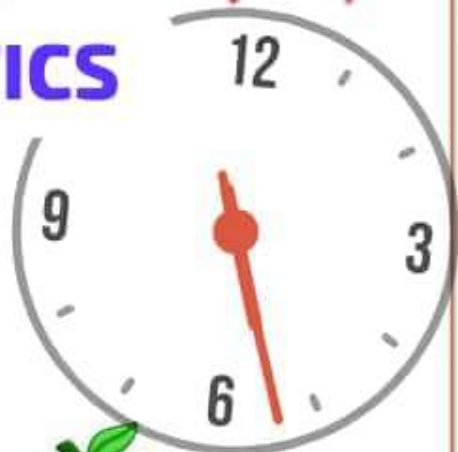


PRE-PRIMARY LEAVING EXAMINATION

**SET FIVE :2024**

OFFICIAL MARKING GUIDE  
FOR

**MATHEMATICS**



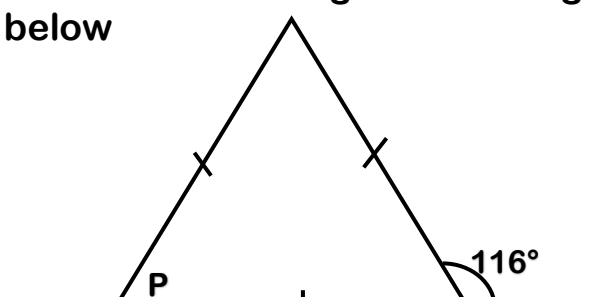

**Set 5 Out of 6**

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AND OFFLINE SCHOOL MANAGEMENT SYSTEM

**TURN OVER**

## SECTION A (40 MARKS)

<p>1 Multiply</p> $\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$ <p><b>Solution process</b></p> $\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$	<p>2 Write 69,002 in words.</p> <p><b>Solution process</b> Sixty-nine thousand two</p>
<p>3 Namataka bought a skirt at sh. 8000 and sold it at sh.9200. What was her percentage profit?</p> <p><b>Solution process</b> Step 1 let us calculate profit first Profit = selling price – buying price Selling price = 9200/=  Buying price = 8000/=  Profit = spx - bpx Where Bpx = buying price Spx = selling price Arrange vertically as below</p> $\begin{array}{r} 9200 \\ -8000 \\ \hline \end{array}$ <p>Profit = sh. 1200</p> <p>Step 2 but we are looking for percentage profit. Percentage profit = <math>\frac{\text{profit} \times 100}{\text{Buying price}}</math></p> $\text{Percentage profit} = \frac{1200 \times 100}{8000}$ $\text{Percentage profit} = \frac{1200}{80}$ <p>Percentage profit = 15% Namataka's % profit was 15%</p>	<p>4 Find the size of angle P in the figure below</p>  <p><b>Solution process</b> Sum of two interior angles = one exterior angle <math>P + P = 116^\circ</math> <math>2P = 116^\circ</math> <b>Hint.</b> we are to divide both sides with the figure which has the unknown as below in order to find it's value</p> $\frac{2P}{2} = \frac{116^\circ}{2}$ <p><math>P = 58^\circ</math></p>
<p>5 Find the next number in the sequence. 17, 12, 8, 5, 3, _____</p> <p><b>Solution process</b></p> <p>17, 12, 8, 5, 3, <u>2</u></p>  <p>-5 -4 -3 -2 -1</p>	<p>6 Find the complement of angle of <math>80^\circ</math></p> <p><b>Solution process</b> Complementary angles add up to <math>90^\circ</math> We are to subtract <math>80^\circ</math> from <math>90^\circ</math></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Given angle degrees</p> <p>↓</p> </div> <div style="text-align: center;"> <p>complement angle</p> <p>↓</p> </div> </div>

		<p>Arrange vertically for proper subtract as below</p> $\begin{array}{r} 90^\circ \\ -80^\circ \\ \hline 10^\circ \end{array}$ <p>Therefore, the complement angle of <math>80^\circ</math> is <math>10^\circ</math></p>
7	<p>A bus carries 59 passengers per trip. How many passengers will the bus carry if it makes 12 trips?</p> <p><b>Solution process</b></p> <p><b>Step 1.</b> 1trip = 59passengers 12trips = y passengers</p> <p><b>Note:</b> let the number of passengers be Y</p> <p>Re-arrange the task as below</p> <p>1trip = 59 passengers 12trips = Y</p> <p><b>Step 2</b> Let us cross multiply as below</p> $\begin{array}{rcl} 1\text{trip} & = & 59\text{passengers} \\ 12\text{trips} & \times & Y \end{array}$ <p><math>Y = 59 \times 12</math> <math>Y = 708</math></p> <p>Therefore, 12 trips will carry 708 passengers</p>	<p>8 Write XCIV in Hindu Arabic.</p> <p><b>Solution process</b></p> <p>Roman numerals = Hindu Arabic</p> $\begin{array}{rcl} \text{XC} & = & 90 \\ \text{IV} & = & 4 \end{array}$ <p>Lets add as below but remember to arrange vertically as below</p> $\begin{array}{r} \text{XC} = 90 \\ \text{IV} = 4 \\ \hline 94 \end{array}$ <p>Therefore, XCIV = 94</p>

9	<p>The average weight of Peter, James and John is 51kg, if the weight of peter is 53kg and that of James is 46kg. Find the weight of John.</p> <p><b>Solution process</b></p> <p>Let the weight be Y kg</p> <p>Total weight = total weight Number of boys</p> $\frac{(46 + 53) \text{ kg}}{3} = \frac{(99)}{3}$ <p>But remember their average weight is 51kg</p> <p>Arrange the task as below</p> $\frac{99 \times Y}{3} = 51$ <p>3 → Number of boys</p> <p>Lets multiply both sides by 3 as below</p> $\frac{3 \times 99 + Y}{3} = 51 \times 3 \quad = \frac{99 + Y}{3} = 51 \times 3$
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$99 + Y = 153 - 99$   
 $Y = 54$   
 Therefor, the weight of John is 54kg

- 10 Change  $110_{\text{two}}$  to denary base
- Solution process**
- $$1101 = (1 \times 2)^3 + (1 \times 2)^2 + (0 \times 2)^1 + (1 \times 2)^0$$
- $$= 8 + 4 + 0 + 1$$
- $$= 13_{\text{ten}}$$

**Key points to note about bases**

Base	Name	Digit used
Two	Binary	0, 1
Three	Ternary	0, 1, 2
Four	Quaternary	0, 1, 2, 3
Five	Quinary	0, 1, 2, 3, 4
Six	Senary	0, 1, 2, 3, 4, 5
Seven	Septenary	0, 1, 2, 3, 4, 5, 6
Eight	Octal	0, 1, 2, 3, 4, 5, 6, 7
Nine	Nonary	0, 1, 2, 3, 4, 5, 6, 7, 8
Ten	Denary / Decimal	0, 1, 2, 3, 4, 5, 6, 7, 8, 9

- 11 Okomba bought the following number of cows during the week as follows

Days of the week	Mon	Tue	Wed	Thur	Fri
No of cows	3	2	5	7	8

Calculate the range of Okomba's weekly purchase.

**Solution process**

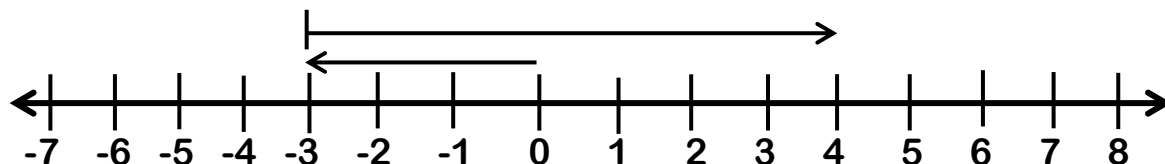
Range = Highest - Lowest

Range =  $(8 - 2)$  cows

$= 6$  cows

The average was 6 cows

- 12 Write the mathematic statement below



The statement is  $-3 + 7 = 4$

- 13 Solve the inequality  $-2p + 4 > 6$

**Solution process**

$$-2p + 4 > 6$$

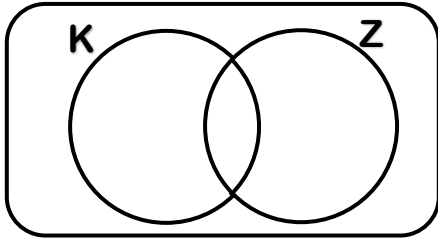
$$-2p > 2$$

So let us divide both side with the figure which has the unknown which is 2p in this case as below

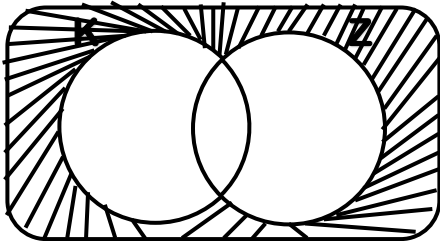
$$\frac{-2p}{2} > \frac{2}{2}$$

$$P < -1$$

- 14 Shade the complement of K U Z in the Venn diagram below.



**Solution process**



- 15 Workout  $1\frac{1}{2} - \frac{5}{6}$

**Solution process**

Convert mixed fraction to improper fraction

$\frac{D \times W + N}{D}$

D

Where d = denominator

W = whole number

N = numerator

$$= \frac{12 \times 1 + 1}{12} - \frac{5}{6}$$

$$= \frac{13}{12} - \frac{5}{6}$$

Lets get the LCM of 12 and 6 which is 12

$$= \frac{13}{12} - \frac{5}{6}$$

Note: We only changed  $1\frac{1}{2}$  to

improper and we left  $\frac{5}{6}$  because it was already an improper fraction

$$= \frac{13}{12} - \frac{5}{6} = \frac{13-10}{12}$$

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

$$= \frac{1}{4}$$

- 16 Namukose got a simple interest of sh. 18000 after depositing sh.90,000 in Baroda bank at an interest rate of 10% per annum. Find how long Namukose's money was in a bank.

**Solution process**

$$S.I = P \times R \times T$$

Where SI = Simple Interest

P = Principle/ money borrowed

R = Rate in percentage

T = Time the money was in the bank (period)

$$SI = \frac{P \times R \times T}{100}$$

$$SI = 18,000 = \frac{90,000 \times 10 \times T}{100}$$

$$18000 = 9000T$$

- 17 Primary four will have a party next week. Find the probability that the party will take that day which starts with T.

**Solution process**

**Step 1.** List down the days of the week as below

M = Monday

T = Tuesday

W = Wednesday

T = Thursday

F = Friday

S = Saturday

S = Sunday

$$\text{Probability} = \frac{\text{sample space}}{\text{No of events}}$$

Let us divide both sides with the figure which has the unknown as below which is 9000

$$\begin{array}{r} \overset{2}{18000} = \overset{1}{9000T} \\ \underline{9000} \quad \underline{9000} \\ 9000 \end{array}$$

Namukose's money was in the bank for 2years

**Note:** Those days which begin with (T) are two ie Tuesday and Thursday, so sample space = 2

**Note:** No of events is 7 because they are from Monday to Sunday  
Arrange the task as below

2 (Sample space)

7 (No of events)

So, days starting with T are  $\frac{2}{7}$

18 The time on a 24hour clock is 42hours, What time will it be on a 12hour clock?

**Solution process**

We shall just subtract and the difference will be our answer

$$\begin{array}{r} 13:42 \\ -12:00 \\ \hline 1:42\text{pm} \end{array}$$

19 Babirye drove from town A to town B at a speed of 72km per hour. town A is 90km away from town B. Calculate the distance she took to reach town B.

**Solution process**

T = D

S

Where T= time

D= Distance

S= speed

Time = distance  
Speed

Where time = ? (unknown)

Distance was 90km

Speed was 72km/hr

$$\begin{array}{r} \overset{5}{T} = \overset{5}{90} \\ \underline{72} \\ 18 \end{array}$$

$$= \frac{5}{4} = 1\frac{1}{4}\text{hrs}$$

**Method 2**

S x T = D

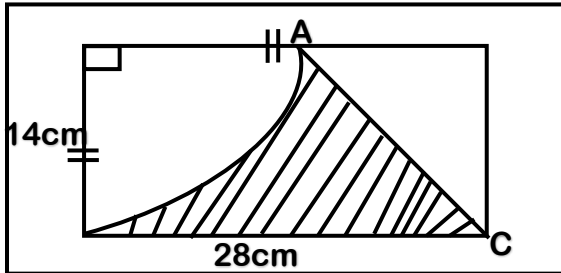
72km x T = 90

$$\begin{array}{r} \overset{5}{72T} = \overset{5}{90} \\ \underline{72} \quad \underline{72} \\ 18 \end{array}$$

$$= \frac{5}{4} = 1\frac{1}{4}\text{hrs}$$

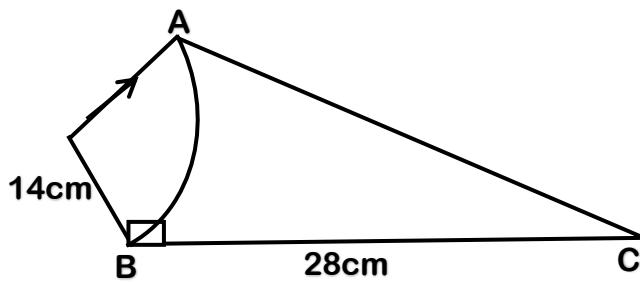
Babirye took  $1\frac{1}{4}$  hrs to reach town B

- 20 The figure below is a trapezium where  $AB = AD = 14\text{cm}$ ,  $BC = 28\text{cm}$  and  $ABD$  forms a quarter of circle. calculate the area of the shaded part. (use  $\pi = \frac{22}{7}$ )



**Solution process**

Let us draw our sketch below



**Area of a trapezium**

$$= ABCD = \frac{1}{2} (14 + 28) \times 14\text{cm}$$

$$\text{Area} = ABCD = \frac{1}{2} (14 + 28) \times 14\text{cm}^2$$

**Area of a circle=**

$$\frac{1}{4} \times \frac{22}{7} \times 14 \times 14\text{cm}^2$$

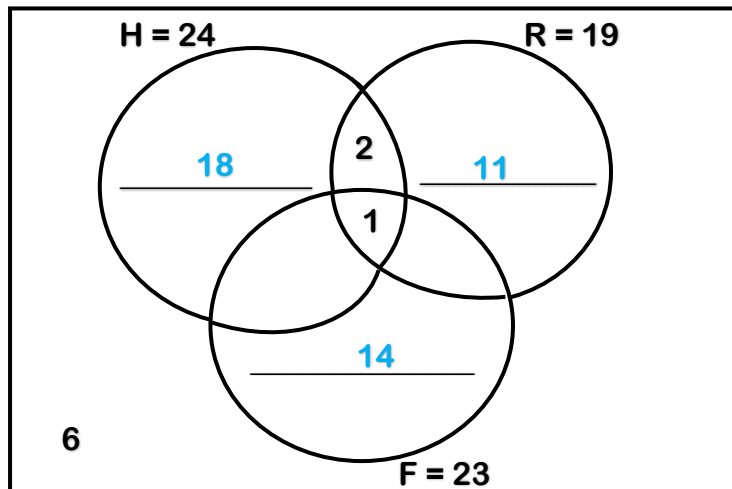
$$\text{Area} = 154\text{cm}^2$$

**Area of the shaded part will be**  
**154cm<sup>2</sup>**



## SECTION B (60 MARKS)

- 21 In Divine nursery and primary school, 60 boys who represented the school in the county sports day played the following games 24 played football (F) 2 played both Hockey and Rugby only, 5 played both football and rugby and 1 played all the three games



(a) Fill in the black spaces in the above Venn diagram.

**Solution process**

Football only

$$= 23 - (3 + 1 + 5)$$

$$= 23 - 9$$

$$= 14$$

(b) How many boys played only one game?

**Solution process**

Number of boys who played only one game =  $n(H)_{\text{only}} + n(R)_{\text{only}} + n(F)_{\text{only}}$

$$18 + 14 + 11$$

$$= 43 \text{ boys}$$

Where  $n(H)$  = Number of boys who played Hockey only

$n(F)$  = Number of boys who played football only

$n(R)$  = Number of boys who played Rugby only

To get the number of boys who played only one game, we had to sum all those who played one game as above

(c) How many boys did not play any game?

**Solution process**

Number of who did not play

$$60 - (n(H)_{\text{only}} + n(R)_{\text{only}} + n(F)_{\text{only}} + 5 + 6)$$

$$60 - (18 + 11 + 14 + 5 + 6)$$

$$60 - 54$$

$$= 6 \text{ boys}$$

There for, only 6 boys did not play any of the games



22

Work out  $\frac{2.7 \times 4.8}{2.4 \times 3.6}$

**Solution process**

Convert decimal number to fractions as below

$$\frac{27}{10} \times \frac{48}{10}$$

$$\frac{24}{10} \times \frac{36}{10}$$

$$\frac{27}{10} \times \frac{48}{10} \div \frac{24}{10} \times \frac{36}{10}$$

$$\frac{27}{10} \times \frac{48}{10} \div \frac{24}{10} \times \frac{36}{10}$$

$$\frac{27}{10} \times \frac{48}{10} \div \frac{24}{10} \times \frac{36}{10}$$

$$\frac{27}{10} \times \frac{48}{10} \div \frac{24}{10} \times \frac{36}{10}$$

$$\frac{27}{10} \times \frac{48}{10} \div \frac{24}{10} \times \frac{36}{10}$$

$$= \frac{27 \times \cancel{48}^2 \times \cancel{100}^1}{\cancel{24}_1 \times 36 \times \cancel{100}_1} = \frac{27 \times 2 \times 1}{36 \times 36} = \frac{54}{36}$$

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

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

(b) Simplify  $1\frac{1}{6} \times 1\frac{1}{7} \div 2\frac{1}{3}$  (2 marks)

**Solution process**

Change the mixed fraction to improper fraction as using the formular below

$$\frac{D \times W + N}{D} \times \frac{D \times W + N}{D} \div \frac{D \times W + N}{D}$$

Where D stands for Denominator

W stands for Whole number

N stands for Numerator

But our task is as written below

$$= 1\frac{1}{6} \times 1\frac{1}{7} \div 2\frac{1}{3}$$

$$\frac{6 \times 1 + 1}{6} \times \frac{7 \times 1 + 1}{7} \div \frac{3 \times 2 + 1}{3}$$

$$\frac{7}{6} \times \frac{8}{7} \div \frac{7}{3}$$

Let us change the division sign to multiplication sign not forgetting that as sign changes, the reciprocal must take plus as below.

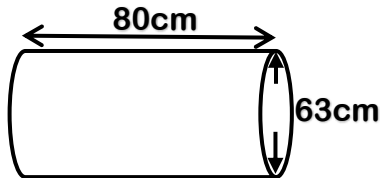
$$\frac{7}{6} \times \frac{8}{7} \times \frac{3}{7}$$

We are going to council as we divide the above mathematical statement as below

$$\frac{\frac{1}{7} \times \frac{4}{8} \times \frac{1}{3}}{\frac{6}{2} \times \frac{7}{1} \times \frac{7}{7}} = \frac{4}{7}$$

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

- 23 The diagram below shows a metallic drum which was cut open to form a door sheet. use it to answer the questions that follow. (5marks)



- (a) Find the length of the above door which was cut made out an iron sheet.

**Solution process**

**Step 1.** Length of the door = circumference of a circle as below

$$\begin{aligned} \text{Length} &= 2\pi r = \pi D \\ &= 22 \times 63 \\ &= 22 \times 9 \\ &= 198\text{cm} \end{aligned}$$

- (b) Calculate the area of the door in meters.

**Solution process**

**Step 1.** As we look at our figure, it is a rectangle, so we should use the formular for finding area of a rectangle is below

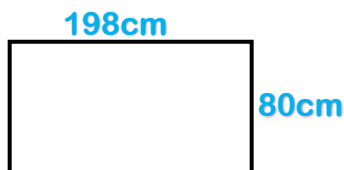
Area = length x width

Where length = 198cm

Width = 80cm

Note: We shall take our calculated length which is in our question 23part a which was 198cm but not 63 because it's a diameter

**Step 2.** Let bring the figure out for the area we are about to calculate



So, area of a rectangle = length x width as in subject expression below

Area = L x W

Area = 198cm x 80cm

Area = 15840cm<sup>2</sup>

**Note:** Always help learners to know why its always written cm<sup>2</sup> or m<sup>2</sup>. it is because we have multiplied two dimensions

And for the reason volume is written as  $\text{cm}^3$ ,  $\text{m}^3$  to mean that 3 dimensions were dealt with eg summary check  $(L \times W \times H) = 3 \text{ dimensions}$  summary check for area  $(L \times W) = 2 \text{ dimensions}$  dealt with.

- 24 Okello spends  $\frac{1}{4}$  of his salary on food,  $\frac{1}{3}$  on clothing,  $\frac{1}{12}$  on fees,  $\frac{1}{6}$  on entertainment and banks the rest which is sh.27000.

(a) What fraction on salary does he bank? (5 marks)

**Solution process**

**Step 1.** We are looking for fraction of money banked

We shall sum up all the given fractions so as to get the fraction banked as arranged below

Fraction on food was  $\frac{1}{4}$

Fraction on clothing was  $\frac{1}{3}$

Fraction on entertainment was  $\frac{1}{6}$

Fraction on fees was  $\frac{1}{12}$

Let us sum up all the fractions as below

$$1 - \left( \frac{1}{4} + \frac{1}{3} + \frac{1}{6} + \frac{1}{12} \right)$$

Let us look for the LCM for all the above denominators as shown below in an expression

$$= 1 - \frac{1}{4} + \frac{1}{3} + \frac{1}{6} + \frac{1}{12}$$

$$= 1 - \left( \frac{3+4+2+1}{12} \right)$$

$$= 1 - \frac{10}{12} = \left( \frac{12-10}{12} \right)$$

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

Okello banks  $\frac{1}{6}$  of his salary

(b) How much does Okello earn as salary

**Solution process**

**Step 1.** To find the salary, we shall assume that his salary is equivalent to Y as in expression below

$$= \frac{1}{6} \text{ of } Y = 27,000$$

$$= \frac{1}{6} \text{ of } Y = 27,000$$

$$= \frac{1}{6} \times Y = 27,000$$

Let us multiply by 6 through out / on both sides as symbolically expressed below

$$6 \times \frac{1}{6} Y = 27,000 \times 6$$

$$Y = 27000 \times 6$$

$$Y = 16,200/=$$

Okello earns sh. 16,200 as his salary

**Final step.** Let us prove all the fractions if they can sum up to 16,2000 as below.

$$(1) \text{ Food} = \frac{1}{4} \times 16,2000 = 40500$$

$$(2) \text{ clothing} = \frac{1}{3} \times 16,2000 = 54000$$

$$(3) \text{ banking} = \frac{1}{6} \times 16,2000 = 27000$$

$$(4) \text{ fees} = \frac{1}{12} \times 16,2000 = 13500$$

$$(5) \text{ entertainment} = \frac{1}{3} \times 16,2000 = 27000$$

Let's arrange them vertically

$$\begin{array}{r} \text{Food} = 40500 \\ \text{Clothing} = 54000 \\ \text{Banking} = 27000 \\ \text{Fees} = 13500 \\ \text{Entertainment} = + 27000 \\ \hline 16,2000/= \end{array}$$

**Hint** we have submitted 16,2000/= as his salary to all the fractions of his expenditure and bank. therefore, our answers have been proven correct.

25 Ssalongo is a business man who has 200 bags of maize flour each weighing 50kg. (6 marks)

(a) Find the weight of kg in tonnes.

**Solution process**

1bag weighs 50kg

Weight of 200 bags =  $50 \times 200$

= 10,000kg

But remember 1tonne = 1000kg

So to change from small unit to bigger unit, we multiply, check on the procedures below

Let the tonne be Y as in expression below

Y tonnes = 10,000kg

Let's cross multiply 1000 as in expression below

$$1000y = 10,000$$

$$\frac{1000y}{1000} = \frac{10,000}{1000}$$

$$\frac{1000y}{1000} = \frac{10,000}{1000}$$

$$\frac{1000y}{1000} = \frac{10,000}{1000}$$

$$1,000,000y = 10,000,000$$

Let us divide both sides by 1,000,000 because it has the unknown which we are looking for (Y) as below

$$\frac{1,000,000}{1,000,000} = \frac{10,000,000}{1,000,000}$$

$$\frac{1,000,000}{1,000,000} = \frac{10,000,000}{1,000,000}$$

$$Y = 10$$

So, the total weight of 200 bags will be 10tonnes

(b) If a pickup carries 2tonnes per trip, work out the number of bags a pickup ill carry in one trip.

**Solution process**

Remember 1tonnes = 200bags

Let the expected number of bags in 2tonnes be K as in expression below

10tonnes = 200bags

2tonnes = K bags

Arrange and cross multiply as in expression below

$$10 \times K = 200 \times 2$$

$$10K = 400$$

$$\cancel{10} \times \cancel{10} = \cancel{400}$$

$$100K = 4000$$

Let us divide both sides with the value which has the unknown which is (K) as in expression below

$$100K = 4000$$

$$100 \quad 100$$

$$K = 40\text{bags}$$

Therefore, the pickup will carry 40 bags in one trip

(c) Find the number of trips the pickup will make to transport the whole flour from the milling machine to Ssalongo's shop.

**Solution process**

1trip = 40bags

Let suppose that the number of trips for the whole flour was M as in expression below

1trip = 40 bags

M trip = 200bags

Let us cross multiply

1trip = 40 bags

M trips = 200bags

Check below

$$\cancel{1} = \cancel{40}$$

$$\cancel{M} = \cancel{200}$$

$$40M = 200$$

Let us divide both sides with the number which has got the unknown value which is (M) and its value is (40) as below

$$40M = 200$$

$$40 \quad 40$$

$$= 5\text{trips}$$

Hence the pickup made 5trips to transport the whole flour to Ssalongo's shop

26 Wammagu went to the super market with sh.10,000, after shopping all the items in the table below, he remained with sh. 400. study the table and answer the questions that follows.

ITEMS	QUANTITY	PRICE PER KG	AMOUNT SPENT
Posho	..... <b>4</b> .....kg	sh. 700	sh. 2800
Beans	2kg	sh. 1300	sh..... <b>2600</b> .....
Rice	..... <b>3</b> .....kg	sh. 600	sh. 1800
Sugar	3kg	<b>sh. 800</b>	..... <b>sh. 2400</b> .....
Total Expenditure			..... <b>sh. 9600</b> .....

(a) By show of working, complete the table

**Solution process**

**(i) Posho**

To find the quantity of posho, we shall use the formular

Converting a bigger unit to a smaller unit, we shall divide

Check below

$$\begin{array}{r} 4 \\ 2800 \\ \hline 700 \end{array} = 4\text{kgs}$$

**(ii) Beans**

To find the total mount spent on beans, we shall use the formular below

Converting a smaller unit to a bigger unit, we shall multiply

Check below

$$\begin{array}{r} 1300 \\ \times 2 \\ \hline \end{array}$$

sh. 2600      Beans costed sh.2600

**(iii) Rice**

To find the quantity of rice, we shall use the formular below

Converting a bigger unit to a smaller unit, we shall divide

Check below

$$\begin{array}{r} 1800 \\ \hline 600 \end{array} = 3\text{kg}$$

**(iii) Sugar**

To find the total spent on sugar, we shall sum up all the expenditure but not forgetting that we don't have the cost for sugar as below

Items	cost
Posho	2800
Beans	2600
Rice	1800
Sugar	Y
	<u>7200 + Y</u>

So, the amount spent on sugar will be obtained by adding all the total cost to the balance which he came up with from the super market and subtract from the amount he went with to the market as below.

Total cost sh. 7200

Balance left sh. 400

Sh.7600

So, to get what was exactly spent on sugar we shall subtract total cost from original amount that he went with as below.

Total cost and balance = sh. 7600

Original amount = sh. 10,000

Arrange vertically while the bigger figure is on the top as below

Sh. 10,000

Sh. - 7600

Sh. 2400

So sugar costed 2400/=

(v) cost per kg of sugar will be obtained by the formular below

Converting from a bigger to a smaller unit, we shall divide

Check below

~~2400~~ 800

31

Each kg of sugar costed sh. 800

Let us prove our answers following the steps below

Add all the total cost = 9600

Write the balance which was left = 400

Arrange vertically as below for proper addition

Sh. 9600

Sh. + 400

Sh. 10,000

So, our answers are correct since what was spent sh. 9600

And the balance was sh. 400. then if summed up gives us sh. 10,000 the original amount he went with for shopping then our answer stands very correct

- 27 A fruit seller sold the following number of oranges in six days. 60, 35, 28, 40, 42 and 35.

(a) What is the modal number of oranges sold?

**Solution process**

Modal number simply means the number which has appeared many times, arrange as below

**No Tallies**

60 |

35 ||

40 |

28 |



42

1

So, the modal number is 35 since it appeared more times than the rest

**Note:** It is important to note that modal is a number which appears more times than others well as modal frequency means the number of times the modal number has appeared.

(b) Work out the mean number of oranges sold.

**Solution process**

Use the formular below to get the mean

Mean =  $\frac{\text{(total number of items)}}{\text{Number of items}}$  Sum up the figures  
count the figures

$$\text{Mean} = \frac{(60 + 35 + 40 + 28 + 42 + 35)}{6}$$

$$\text{Mean} = \frac{(240)}{6}$$

$$\text{Mean} = 40$$

(c) By the end of the seventh day, the mean number of oranges was 44. How many oranges were sold on the seventh day?

**Solution process**

Let the number of oranges sold on the seventh day be S.

$$\frac{240(\text{total oranges}) + S (\text{Oranges sold on the seventh day})}{7}$$

$$= \frac{240 + S}{7} = 44 \text{ (mean number of oranges sold on the seventh day)}$$

$$\frac{240S}{7} = 44$$

Multiply both sides by 7 as below

$$\frac{(240 + S) \times \cancel{7}}{\cancel{7}} = 44 \times 7$$

Let us counsel to remove the denominator and write down the remaining mathematical statement as below without the crossed digits

$$240 + S = 44 \times 7$$

Multiply the side without the unknown to remain with a single figure as below

$$240 + S = 308$$

$$240 - 240 + S = 308 - 240$$

Since 240 crossed the equal sign it became negative that's why we have subtracted it from 308

Check below

$$S = 308 - 240$$

Arrange vertically for proper subtraction as below

$$\begin{array}{r} 308 \\ - 240 \\ \hline 68 \end{array}$$

So, 68 oranges were sold on the seventh day

28 Kafero sold a plot to Mandela at sh. 63,000 making a loss of 10%. Mandela later sold the plot to Kabako at a profit of 15%.

(a) Calculate the amount of money Kafero paid for the plot.

**Solution process**

$$100\% - 10\% = 90\%$$

Let the buying price be N

$$\frac{90}{100} \text{ of } N = 6300$$

$$\frac{90}{100}$$

$$\frac{90}{100} \times N = 63000$$

$$\frac{90}{100}$$

$$9 \times N = 6300$$

$$\frac{9}{10}$$

To remove the denominator, we shall multiply both sides with it as below

$$\frac{9}{10} \times 9 \times N = 63000 \times 10$$

$$\frac{9}{10}$$

$$9 \times N = 63000 \times 10$$

$$9N = 630,000$$

Let us divide both sides by the figure which has the unknown and, in this case, the figure is (9) check below

$$\frac{9}{9} N = \frac{630,000}{9}$$

$$\frac{9}{9}$$

$$N = 70,000$$

Kafero paid sh. 70,000

(b) For how much did Mandela sell the plot to Kabako?

**Solution process**

$$100\% + 15\% = 115\%$$

$$115 \times 63000$$

$$\frac{115}{100}$$

$$\frac{115}{100} \times 63000$$

$$\frac{115}{100}$$

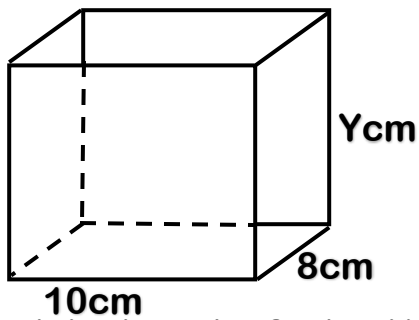
Arrange vertically for proper multiplication as below

$$\begin{array}{r} 630 \\ \times 115 \\ \hline 3150 \\ 630 \phantom{0} \\ + 630 \phantom{00} \\ \hline 72450 \end{array}$$

**Note:** Always mind of arranging the digits in their right positions for proper (DSM) =(Division. Subtraction and Multiplication)

So, Mandela sold the plot at sh. 72450.

29 The sum of length of all the edges of the prism below is 96cm.



(a) Find the length of edge Y.

**Solution process**

Length, Mass and Capacity

$$4y = 96 - (10 \times 4) + (8 \times 4)$$

$$4y = 96 - (40 + 32)$$

$$4y = 96 - 72$$

$$4y = 24$$

Let us divide both sides by the figure which has the unknown as below

$$\frac{4y}{4} = \frac{24}{4}$$

$$Y = 6\text{cm}$$

So, y is equal to 6cm

(b) Calculate the volume of the prism.

**Solution process**

Volume = base area x height

$$\text{Volume} = (10\text{cm} \times 8\text{cm} \times 6\text{cm})$$

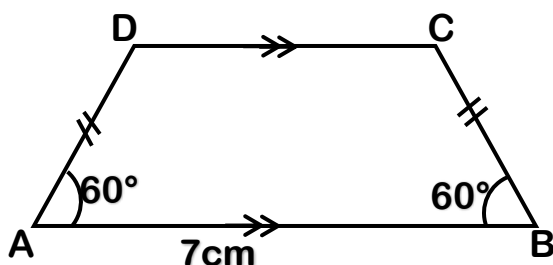
$$\text{Volume} = 480\text{cm}^3$$

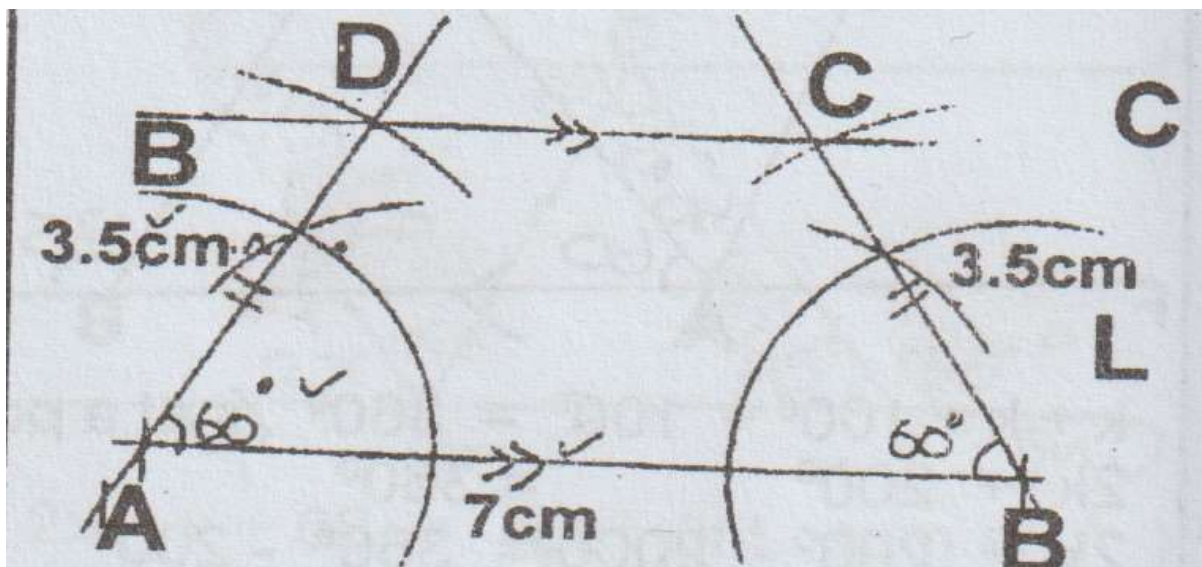
Note: We have put  $\text{cm}^3$  to show that we have multiplied 3 diameters

30 Using a ruler, pencil and a pair of compasses only, construct a quadrilateral ABCD where line AB = 7cm and angle ABC = BDA =  $60^\circ$  and AD = BC = 3.5cm.

**Solution process**

**Sketch**



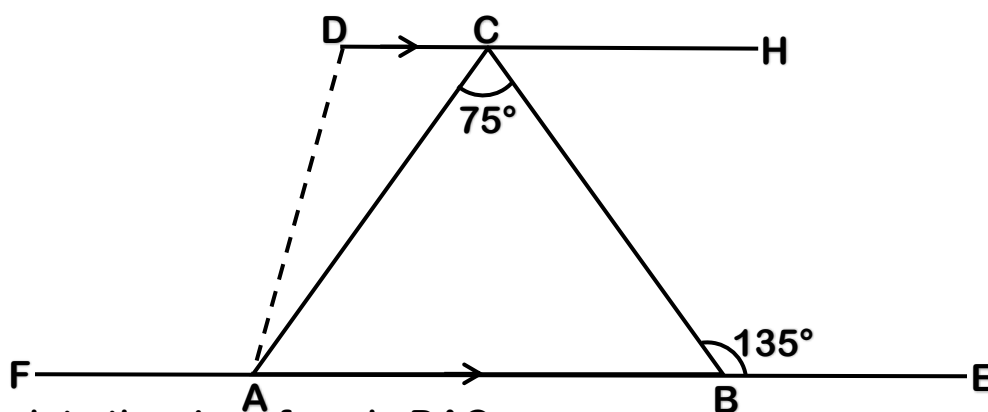


(b) Measure length DC.

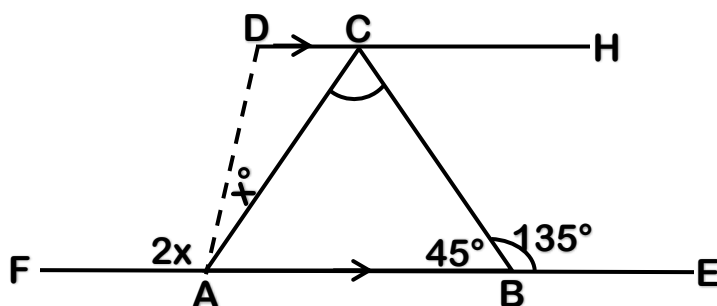
**Solution process**

$$DC = (3.5 \pm 0.1) \text{ cm}$$

- 31 In the diagram below, line DH is parallel to FE, angle FAD is twice angle DAC. Study the diagram below and use it to answer the question that follows.



(a) Calculate the size of angle DAC



$$\angle ABC = 180^\circ - 135^\circ$$

$$\angle ABC = 45^\circ$$

**Hint:** When you are told to look/ find the size of any given angle in the digit letter arrangement as ABC, QTV or VSD, its important to note that by will inquiring you to find the size of angle B, T and S respectively (in simple terms you must find the size of the angle represented by the middle letter

**Step 2**

Let  $\angle DAC = X$ ,  $\angle FAD = 2X$

$2x + x = 75^\circ + 45^\circ$  (int  $\angle S = 1$  opp – ext angle)

Note: We have multiplied  $\angle FAD$  by 2 because it's twice  $\angle DAC$

$$3X = 120$$

Let us divide both sides by the digit which has the unknown in this case, it is 3(on X) as below

$$\cancel{3}x = \frac{120}{\cancel{3}}$$

$$\angle DAC = 40^\circ$$

(b) Find the value of angle ADC.

Let angle  $ADC = 2X$  (alt. LS)

$$= 2 \times 40^\circ$$

$$= 80^\circ$$

**OR** Let  $ADC =$

$$y + x + 60^\circ = 180^\circ$$

$$y + x + 60^\circ = 180^\circ$$

$$y + 100 - 100 = 180 - 100$$

$$y = 80^\circ$$

$$\angle ADC = 80^\circ$$

32 Given that  $x = 2y + 1$ . complete the table below.

X	1	.....	5	.....	9
Y	.....	1	.....	3	.....

**Solution process**

X	1	B	5	D	9
Y	A	1	C	3	E

**Using the equation given**

Substituting for  $x = 1$  and  $y = 8$

$$1 = 2a + 1$$

$$1 - 1 = 2a$$

$$0 = 2a$$

$$a = \frac{0}{2}$$

$$= 0$$

**Substitution for  $x = b$  and  $y = 1$**

$$b = 2x + 1 + 1$$

$$b = 2 + 1$$

$$b = 3$$

**Substitution for  $x = 5$  and  $y = c$**

$$5 = 2c + 1$$

$$5 - 1 = 2c$$

$$4 = 2c$$

Let us divide both sides with the figure which has the unknown as below.

$$\frac{4}{2} = \frac{2c}{2}$$

$$2 = c$$

$$c = 2$$

**Substitution for  $x = d$  and  $y = 3$**

$$9 = 2e + 1$$

$$9 - 1 = 2e$$

$$8 = 2e$$

Let us divide both sides with the figure which has the unknown.

$$\frac{8}{2} = \frac{2e}{2}$$

$$4 = e$$

$$e = 4$$

**Substitution for  $x = d$  and  $y = 3$**

$$d = 2 \times 3 + 1$$

$$d = 6 + 1$$

$$d = 7$$

**Our final table becomes,**

X	1	<u>3</u>	5	<u>7</u>	9
Y	<u>0</u>	1	<u>2</u>	3	<u>4</u>

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