

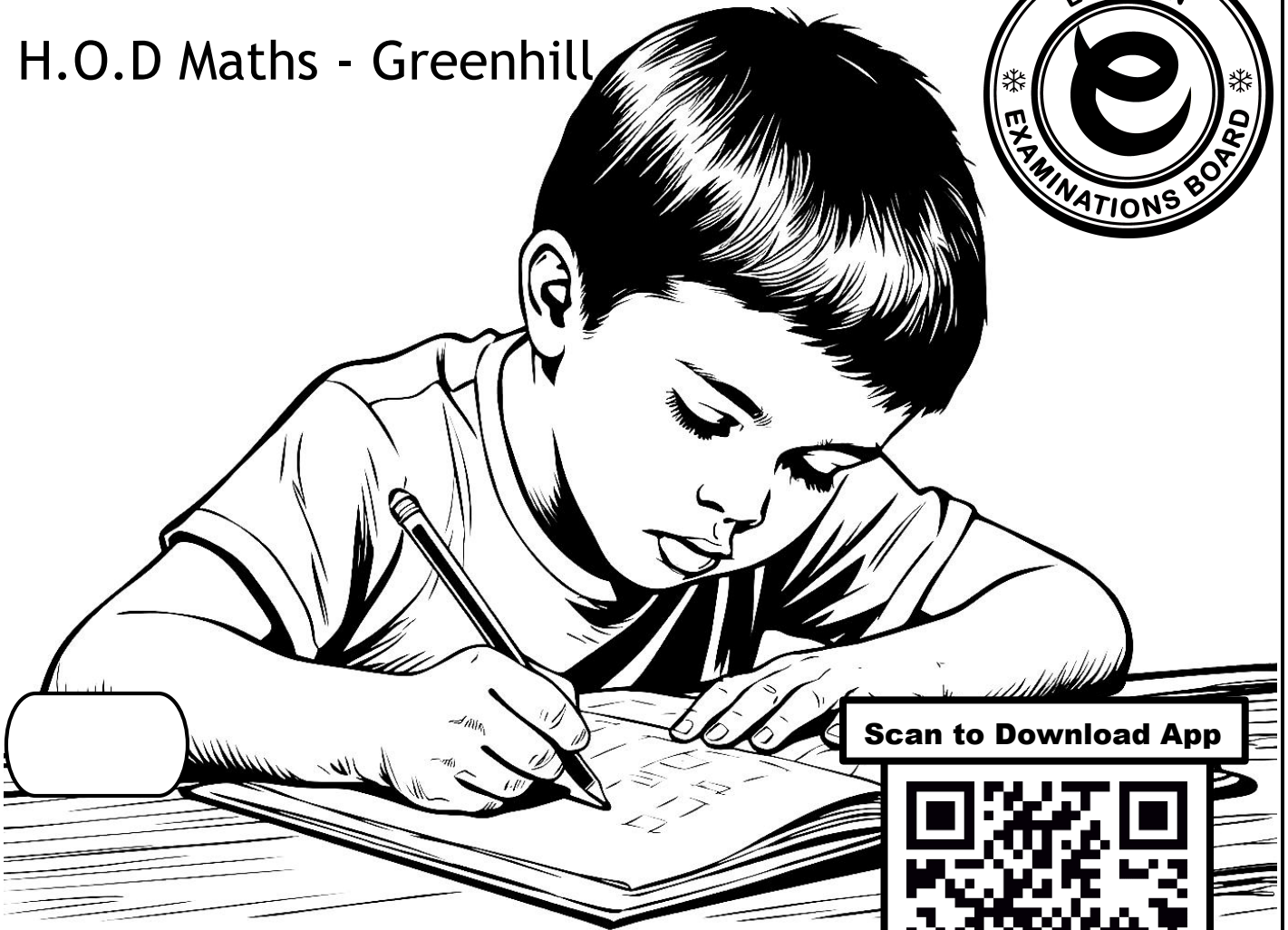
PRE PLE SET 9/10

Prepared by:

Matovu JB Lubega

H.O.D Maths - Greenhill

MTC GUIDE



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PRE PLE SERIES(10) sets

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SECTION A: 40 MARKS

1. Work out: $55+144$

$$\begin{array}{r} 144 \\ +55 \\ \hline 199 \end{array}$$

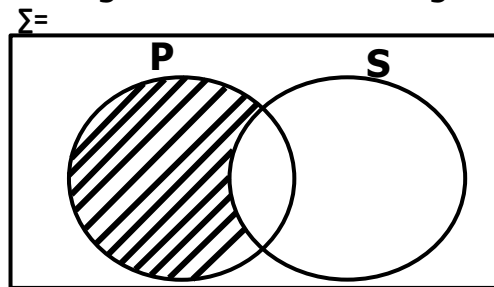
M1 for correct method.
(Place value order and operation sign)
A1 for 199.

2. After the death of His Holiness Pope Francis this year, "One hundred thirty-eight" cardinals came on board to elect the new Pope amongst them. Pope LEO XIV was elected as a new Pope. Write the number of cardinals in Hindu-Arabic numerals.

$$\begin{array}{r} 100 \\ +38 \\ \hline 138 \end{array}$$

B2 for 138.

3. Describe unshaded region in the Venn diagram below.



$(P - S)^1$

B2 for $(P - s)^1$.

4. Round off 439.975 to one decimal place.

$$\begin{array}{r} 11 \\ +439.9 \\ 0.1 \\ \hline 440.0 \end{array}$$

M1 for correct method.

A1 for 440.0

$$\begin{array}{r} . \\ . \\ . \end{array} 439.975 = 440.0$$

5. Which number has been expressed in standard form to give 6.37×10^{-4}

$$\begin{array}{l} 6.37 \times \frac{1}{10} \times \frac{1}{10} \times \frac{1}{10} \times \frac{1}{10} \\ 6.37 \times \frac{1}{10000} \\ \frac{637}{100} \times \frac{1}{10,000} \\ \frac{637}{1,000,000} \end{array} \quad \begin{array}{l} 0.000637 \\ 1000,000 \\ 0.000637 \end{array}$$

M1 for correct method.

A1 for correct answer.

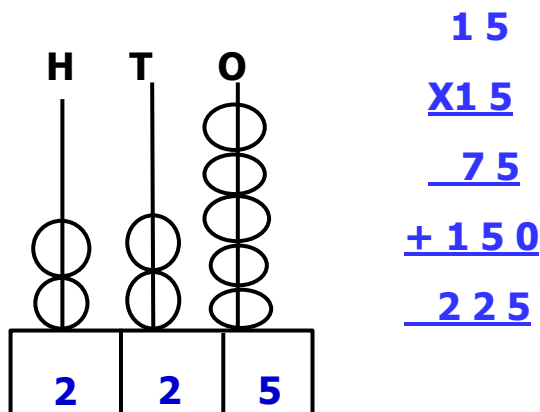
6. By dividing, prove that 2025 is an ordinary year.

$$\begin{array}{r} 2025 \\ 4 \\ \hline 2025 \\ 4 \\ \hline 506 \text{ rem } 1 \\ 2025 \\ -4 \\ \hline 1 \end{array}$$

$$506 \frac{1}{4}$$

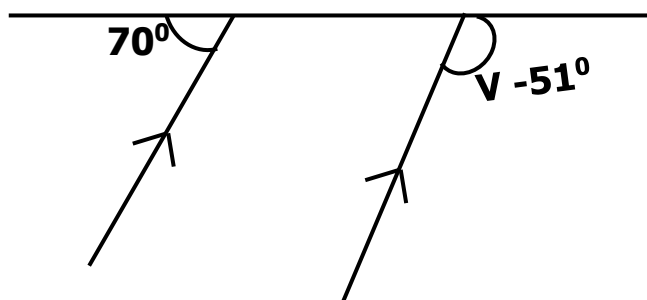
B2 for correct answer.

7. Show and represent the square of 15 on the abacus below



B1 for getting the square of 15
 B1 for representing on the abacus.

8. Find the value of the unknown in the figure below.



$$\begin{aligned} 70^\circ + v - 51^\circ &= 180^\circ \\ 70^\circ - 51^\circ + v &= 180^\circ \\ 19^\circ + v &= 180^\circ \\ 19^\circ - 19^\circ + v &= 180^\circ - 19^\circ \\ v &= 161^\circ \end{aligned}$$

M1 for correct method.

A1 for 161°

9. Express 0.666... as a rational number.

Let the number be d.

$$\begin{aligned} d &= 0.666..... \\ 10 \times d &= 10 \times 0.666..... \\ 10d &= 6.666.... \\ 10d &= 6.666.... \\ - d &= 0.666.... \\ \hline 9d &= 6 \end{aligned}$$

$$\begin{aligned} \frac{1}{9}d &= \frac{2}{3} \\ d &= \frac{2}{3} \end{aligned}$$

M1 for correct method.

A1 for $\frac{2}{3}$

2

10. Rhamophous was born in 14BC and died in 37AD. How old was he?

$$\begin{aligned} AD - BC \\ 37 - 14 \\ 37 - (-14) \\ 37 + 14 \\ 51 \text{ years} \end{aligned}$$

M1 for correct method.

A1 for 51 years.

∴ He was 51 years old

11. Solve for C ;

$$\frac{c^2}{2} - 2 = 6$$

$$2 \times \frac{c^2}{2} - 2 \times 2 = 6 \times 2$$

$$1 \times 1$$

$$c^2 - 4 = 12$$

$$c^2 - 4 + 4 = 12 + 4$$

$$c^2 = 16$$

$$\sqrt{c^2} = \sqrt{16}$$

$$\sqrt{(c \times c)} = \sqrt{(4 \times 4)}$$

$$c = 4$$

M1 for correct method.

A1 for 4 as value of c.

12. The average age of 8 pupils at North Road Primary School is 15 years. If two pupils whose ages are 10 years and 14 years were taken to another school, find the average age of the remaining pupils.

$$\frac{\text{Total age of 8 pupils} - \text{total age of 2 pupils}}{\text{Remaining number of pupils}}$$

$$\frac{(15 \times 8) \text{ years} - (10 + 14) \text{ years}}{6}$$

$$\frac{120 \text{ years} - 24 \text{ years}}{6}$$

$$\frac{96 \text{ years}}{6}$$

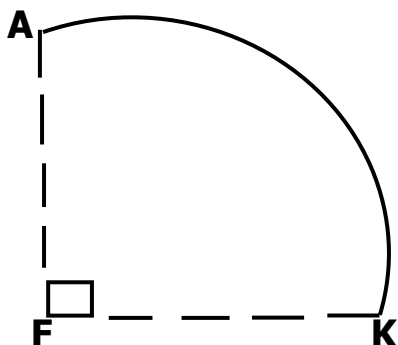
$$\frac{16}{1}$$

16 years.

M1 for correct method.

A1 for 16 years.

13. The length of the arc drawn below is 11cm. Calculate its radius.



$$\frac{1}{4} \times 2\pi r = \text{length of AK}$$

$$\frac{1}{4} \times 2 \times \frac{22}{7} \times r = 11 \text{ cm}$$

$$\frac{1}{4} \times 2 \times \frac{22}{7} \times r = 11 \text{ cm}$$

M1 for correct method.

$$\frac{11}{7} \times r = 11\text{cm}$$

A1 for $r = 7\text{cm}$.

$$\frac{11r}{7} = 11\text{cm}$$

$$7 \times \frac{11r}{7} = 11\text{cm} \times 7$$

$$11r = 77\text{cm}$$

$$\frac{11r}{11} = \frac{77\text{cm}}{11}$$

$$r = 7\text{cm}$$

14. While returning the scripts for marking at the centre, the head teacher of a certain school from Mbarara City after covering $\frac{1}{4}$ from the whole journey, he received a phone call from the class chairperson to come back for the portal code number and other scripts. How long was the journey if 144km remained to reach the centre?

$$1 - \frac{1}{4} \quad \left| \quad 144\text{km} \div \frac{3}{4} \quad \left| \quad 48\text{km} \times 4 \right. \right.$$

$$\frac{4}{4} - \frac{1}{4} \quad \left| \quad \frac{144\text{km}}{1} \div \frac{3}{4} \quad \left| \quad 192\text{km} \right. \right.$$

$$\frac{4-1}{4} \quad \left| \quad \frac{144\text{km}}{1} \times \frac{4}{3} \quad \left| \quad \right. \right.$$

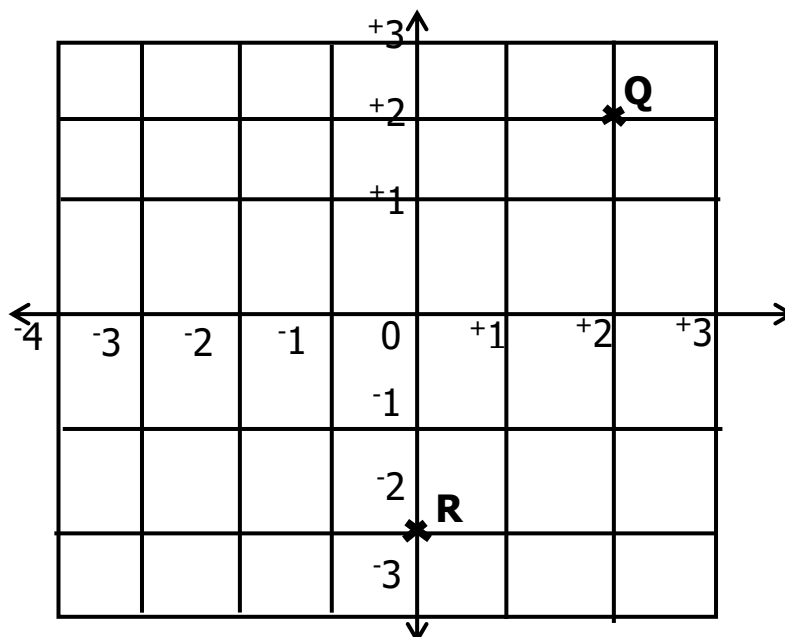
$$\frac{3}{4} \quad \left| \quad \frac{48}{1} \times \frac{4}{3} \quad \left| \quad \right. \right.$$

$$\frac{3}{4} \quad \left| \quad \frac{144\text{km}}{1} \times \frac{4}{3} \quad \left| \quad 4 \right. \right.$$

M1 for correct method.

A1 for 192km.

15. Write the co-ordinates of the point **Q** and **R** on the grid below.



B1 for Q(+2, +2)

B1 for R(0, -2)

Q (+2, +2)
R (0, -2)

16. Workout: $1\frac{1}{2} \div \frac{1}{2}$ using repeated subtraction.

$$\begin{array}{r|l} \frac{3}{2} \div \frac{1}{2} & \frac{2}{2} - \frac{1}{2} \\ \frac{3}{2} - \frac{1}{2} & \frac{2-1}{2} \\ \frac{3-1}{2} & \frac{1}{2} \\ \frac{2}{2} & \frac{1}{2} - \frac{1}{2} \end{array}$$

M1 for correct method.

A1 for 3

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

17. Musiime sent her child to the shop on Monday last week to buy items using different denominations in Uganda currency. Study the table below and complete it correctly.

FEATURE ON THE NOTE	NUMBER OF NOTES	AMOUNT
A fish	_____	sh. 20,000
_____	20	sh. 400,000

$$\begin{array}{r|l} \frac{\text{sh. } 20,000}{\text{sh. } 2,000} & \frac{\text{sh. } 400,000}{20} \\ \text{10notes.} & \text{sh. } 20,000 \end{array}$$

B1 for 10 notes in the table.

Picture of a buffalo. B1 for buffalo in the table.

18. In a certain examination body, the head of mathematics department briefed his fellow workers on how to assess and examine candidates in the special PLE mock exams. He took $7\frac{1}{4}$ hours and the briefing ended at 6:45p.m. At what time did it start?

Hours	minutes
6	45 p.m
+12	00
18	45

B1 for 18 45

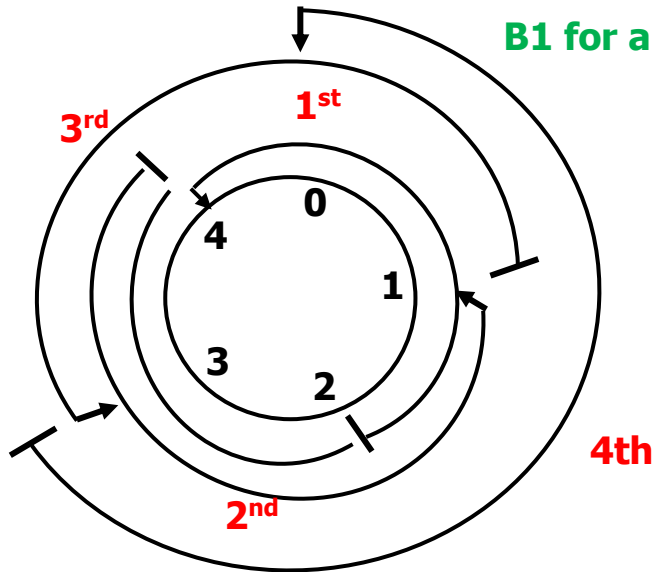
18 45 hours.

Hours	Minutes
18	45
-7	15
11	30

B1 for 11: 30a.m

. . It started at 11: 30a.m

19. Workout: $2 \div 3 \pmod{5}$ using clock arithmetic.

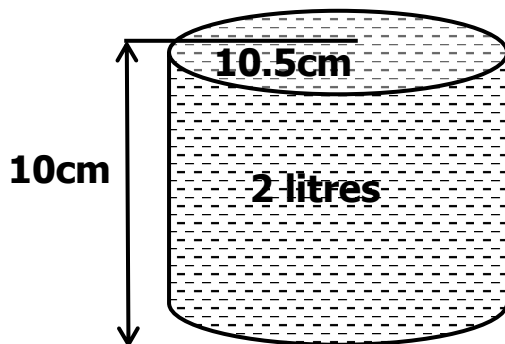


B1 for a clock arithmetic drawn correctly.

B1 for $4 \pmod{5}$

. . $2 \div 3 = 4 \pmod{5}$

20. Below is a cylindrical cup full of milk study it carefully and answer the question that follows.



Find the area of its curved surface in centimetres.

Area = circumference x height

$$A = \pi d \times h$$

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

M1 for correct method.

$$A = \frac{22}{7} \times \frac{3}{1} \times 21\text{cm} \times 10\text{cm}$$

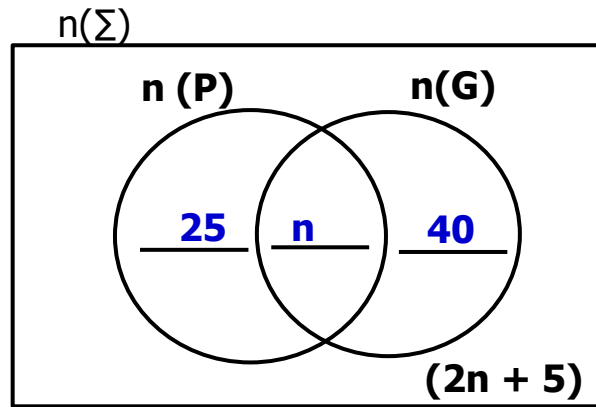
A1 for 660cm^2

$$A = 66\text{cm} \times 10\text{cm}$$

$$A = 660 \text{ c}$$

SECTION B: 60 MARKS

21. In a group of 100 farmers in the village, $\frac{1}{4}$ of them like only Poultry farming (P) and two fifths like Goat rearing (G) only.
- (a) Complete the Venn diagram if n farmers like both practices and $2n+5$ like neither of the two practices. (03 marks)



$n(p)$ only

$\frac{1}{4}$ of 100 farmers.

$$\frac{1}{4} \times \frac{25}{100}$$

B1 for 25

25 farmers

$n(G)$ only

$\frac{2}{5}$ of 100 farmers.

$$\frac{2}{5} \times \frac{20}{100}$$

B1 for 40

2 x 20

40 farmers

- (b) If the farmers who like only poultry farming are equal to those who like neither.

Find the value of n .

(01 marks)

$$2n+5 = 25$$

$$2n+5-5 = 25 - 5$$

M1 for correct equation.

$$2n = 20$$

A1 for $n = 10$.

$$\frac{1}{2n} = \frac{10}{20}$$

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

$$n = 10$$

- (c) What is the probability of choosing a farmer randomly who did not practice either poultry farming or goat keeping? (02 marks)

$$n(P \cup G)^1$$

$$2n + 5$$

$$(2n) + 5$$

$$(2 \times 10) + 5$$

B1 for $\frac{1}{4}$

$$20 + 5$$

25 farmers

$$\text{Prob} = \frac{n(E)}{n(ss)}$$

$$\text{prob} = \frac{25}{100}$$

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

22. Primary seven pupils of Ebenezer Junior School were told to form mathematics discussion groups by their subject teacher in order to practice different competences. When they formed groups of sevens, 3 remained and when they formed groups of 8s, 5 remained. 19 boys were in the class. In groups of 9, none remained.

Find the number of girls participated in the discussion.

(05 marks)

$$0 \text{ (finite 9)} = \{0, 9, 18, 27, 36, 45, 54, 63, 72, \dots\}$$

$$3 \text{ (finite 7)} = \{3, 10, 17, 24, 31, 38, 45, 52, 59, 66, \dots\}$$

$$5 \text{ (finite 8)} = \{5, 13, 21, 29, 37, 45, 53, 61, 69, \dots\}$$

45 pupils were in class in the class

B2 for correct finite.

$$\begin{array}{r} 3 \\ 45 \end{array}$$

M1 for correct method.

$$\begin{array}{r} 3 \\ 45 \\ -19 \end{array}$$

A1 for 26 girls.

$$\begin{array}{r} 3 \\ 45 \\ -19 \\ \hline 26 \end{array}$$

26 girls participated

23. Below is Mr. Mutesasira's trading prices in a certain district who is a business man. Study it and answer questions that follow.

ITEM	BUYING PRICE	SELLING PRICE
1KG OF COFFEE	sh. 3100	sh. 3550
1KG OF G. NUTS	sh. 2000	sh. 2210
A BUNCH OF BANANA	sh. 21000	sh. 25500
1KG OF BEANS	sh. 2300	sh. 2450
1KG OF MAIZE	sh. 1150	sh. 1250

- (a) Mr. kamanzi bought all items above from Mr. Mutesasira, how much money did he pay? (02 marks)

$$\text{sh. } 3550 + \text{sh. } 2210 + \text{sh. } 25500 + \text{sh. } 2450 + \text{sh. } 1250.$$

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \end{array}$$

M1 for correct method.

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \\ \text{sh. } 3,550 \end{array}$$

A1 for sh. 34,960.

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \\ \text{sh. } 3,550 \\ \text{sh. } 2,450 \end{array}$$

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \\ \text{sh. } 3,550 \\ \text{sh. } 2,450 \\ \text{sh. } 2,210 \end{array}$$

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \\ \text{sh. } 3,550 \\ \text{sh. } 2,450 \\ \text{sh. } 2,210 \\ \text{sh. } + 1,250 \end{array}$$

$$\begin{array}{r} 111 \\ \text{sh. } 25,500 \\ \text{sh. } 3,550 \\ \text{sh. } 2,450 \\ \text{sh. } 2,210 \\ \text{sh. } + 1,250 \\ \hline \text{sh. } 34,960 \end{array}$$

- (b) Mukadde Natalia sold 5kg of coffee, 2kg of gnuts, 5kg of maize and 2 bunches of banana to Mr. Mutesasaira. Find the total cost received by the seller. (03 marks)

Coffee

sh.3100 x 5

shs.15,500

G.nuts

shs.2000 x 2

shs.4,000

Maize

shs.1150 x 5

shs.5,750

Banana

shs.21000 x 2

shs.42,000

11

sh. 42,000

sh. 15,500

sh. 5,750

sh. +4,000

sh. 67,250

B1 for sh. 15,500.

B1 for sh. 5,750.

B1 for sh. 67,250.

. . sh. 67,250 was received by the seller.

(c) Majorine took 12 kg of beans to him. How much money was she given?
(01 mark)

sh.2300 x 12

sh.27,600

B1 for sh.27,600

24. In a Prison, $\frac{2}{3}$ of the ladies are Kenyans and $\frac{1}{6}$ of the Gentlemen are Tanzanians, the percentage of men in the prison is 30% and the prison has 774 prisoners who are Kenyans. If the prison contains only Kenyans and Tanzanians, find the total number of prisoners in the prison. (5marks)

Percentage of ladies

100% - 30%

70%

Ladies who are Kenyans

$\frac{2}{3}$ of 70 %

B1 for 70%.

$$\frac{1}{3} \times \frac{70}{100}$$

B1 for $\frac{7}{15}$.

$$\frac{1}{3} \times \frac{70}{100} = \frac{7}{15}$$

B1 for $\frac{1}{4}$.

$$\frac{7}{15}$$

M1 for correct method.

Gentlemen who are Kenyans

$$\left(1 - \frac{1}{6}\right) \text{ of } 30\%$$

A1 for 1080.

$$\left(\frac{6}{6} - \frac{1}{6}\right) \times \frac{30}{100}$$

$$\left(\frac{6-1}{6}\right) \times \frac{30}{100}$$

$$\frac{5}{6} \times \frac{30}{100}$$

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

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

$$774 \text{ prisoners} \div \left(\frac{1}{4} + \frac{1}{15}\right)$$

$$774 \div \left(\frac{28+15}{60}\right)$$

$$\frac{774}{1} \times \frac{60}{43}$$

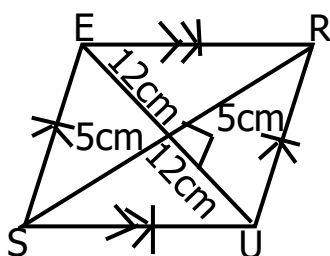
$$\frac{774}{1} \times \frac{60}{43}$$

$$(18 \times 60)$$

1080prisoners.

25. (a) Using a well-sharpened pencil, a ruler and a pair of compasses only, construct a rhombus SURE in which SR = 10cm and UE = 24cm. (04 marks)

Sketch Drawing

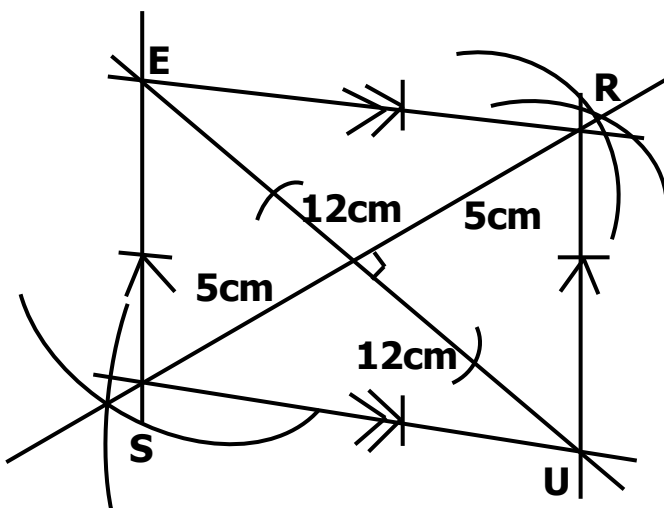


S1 for a sketch.

D1 for diagonal one.

D1 for diagonal two.

J1 for joining vertices.



(b) Calculate the area of the figure.

(02 marks)

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times d_1 \times d_2 \\ &= \frac{1}{2} \times 24\text{cm} \times 10\text{cm} \\ &= 12\text{cm} \times 10\text{cm} \\ &= 120\text{cm}\end{aligned}$$

B1 for correct length.

26. The timetable below shows how yy bus travelled from Kampala to Mbaale city. Study it carefully and answer questions that follow.

Town	Arrival	Departure
Kampala bus park		10 : 30p.m.
Mukono	11 : 45p.m.	12 : 15a.m.
Buikwe	1 : 05a.m.	1 : 45a.m.
Kamuli	2 : 15a.m.	2 : 15a.m.
Mugholi	3 : 35a.m.	4 : 12a.m.
Mbaale bus park	5 : 48a.m.	

(a) At what time did the bus reach Buikwe?

(01 mark)

At 1:05am

B1 for 1:05a.m.

(b) Express the bus' departure time from Mukono in 24 hour clock. (01 mark)

12 : 15 am

-12 : 00hrs

B1 for 00 15hours.

00 15hours

(c) How long did the bus take in stopovers for the whole journey? (02 marks)

30 minutes

40 minutes

+37 minutes

107 minutes

M1 for correct method.

A1 for answer.

Or

1 hour 47 minutes

Or

1 $\frac{47}{60}$ hours

(d) If the journey costs shs.33500 on one route for each passenger, Amira and her dad

Quarish travelled from Kampala and then back, how much did they spend?

(02 marks)

1 route costs sh. 33,500

2 routes cost sh. 33,500 x 2

2 routes cost sh. 67,000

2 passengers cost

Sh .67000 x 2

Sh. 134,000

B1 for sh. 67,000.

B1 for sh. 134,000.

27. The ratio of the interior angle to its exterior angle of a regular polygon is 3:2 respectively. Name the polygon.

Ext<	Int<	Total ratio
2	$\frac{5-2}{3}$	5

Number of sides

Centre <

Ext<

Ext<

2p

2 x p

2 x 36°

72°

360°

72°

5

360°

72°

1

5 sides

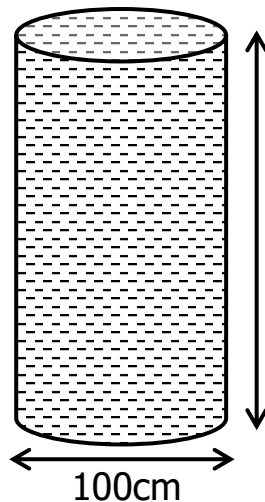
. . The polygon is Pentagon.

28. Below is Peter's tank which has a diameter of 100cm. it is 350cm high, it contains water to the height to $\frac{4}{5}$ of the height of it. How many litres of water should be added to fill the tank. $\left(\text{Take } \pi = \frac{22}{7} \right)$ (04 marks)

Height of empty space.

$$\frac{5}{5} - \frac{4}{5} = \frac{1}{5} \rightarrow \frac{1}{5} \times 350\text{cm}$$

$$\rightarrow \underline{70\text{cm}}$$



M1 for correct method.

A1 for 70cm.

Volume of the space left (empty space)

$$v = \pi r^2 \times h$$

$$v = \frac{22}{7} \times 50\text{cm} \times 50\text{cm} \times 70\text{cm}$$

$$v = \frac{22}{7} \times 50\text{cm} \times 50\text{cm} \times 10\text{cm}$$

$$v = 22 \times 50\text{cm} \times 50\text{cm} \times 40\text{cm}$$

$$v = 550000\text{cm}^3$$

$$\text{Capacity} = \frac{\text{volume}}{1000\text{cm}^3}$$

$$\frac{550000\text{cm}^3}{1000\text{cm}^3}$$

$$\underline{550\text{ litres.}}$$

$$\underline{2200\text{ litres.}}$$

B1 for correct working.

B1 for 2200litres.

29. Mzee was a milk seller at buhura village in bushenyi ishaka. 48liters of milk were were sold in 3hours. Where by, one more litre of milk was sold more than the previous hour.
(a) How many more litres of milk did he sell on the last hour than the first hour? (04 marks)

Let the amount of litres of milk in the first hour be k.

1st hr	2 nd hr	3 rd hr	Total
k	k + 1	k + 2	48

$$K + k+1+k+2 = 48 \text{ litres}$$

M1 for formation of correct equation.

$$K+K+K+1+2 = 48$$

$$3K + 3 = 48$$

B1 for 15.

$$3K + 3 - 3 = 48 - 3$$

$$3k = 45$$

$$\frac{3k}{3} = \frac{45}{3}$$

$$K = 15$$

First hour	Last hour
K	k + 2
15litres	15 + 2 17litres.

B1 for correct working.

B1 for 2 more litres of milk.

$$17 \text{ litres}$$

$$- 15 \text{ litres}$$

2 more litres of milk

(b) Find the number of litres he sold in the second hour?

(01 mark)

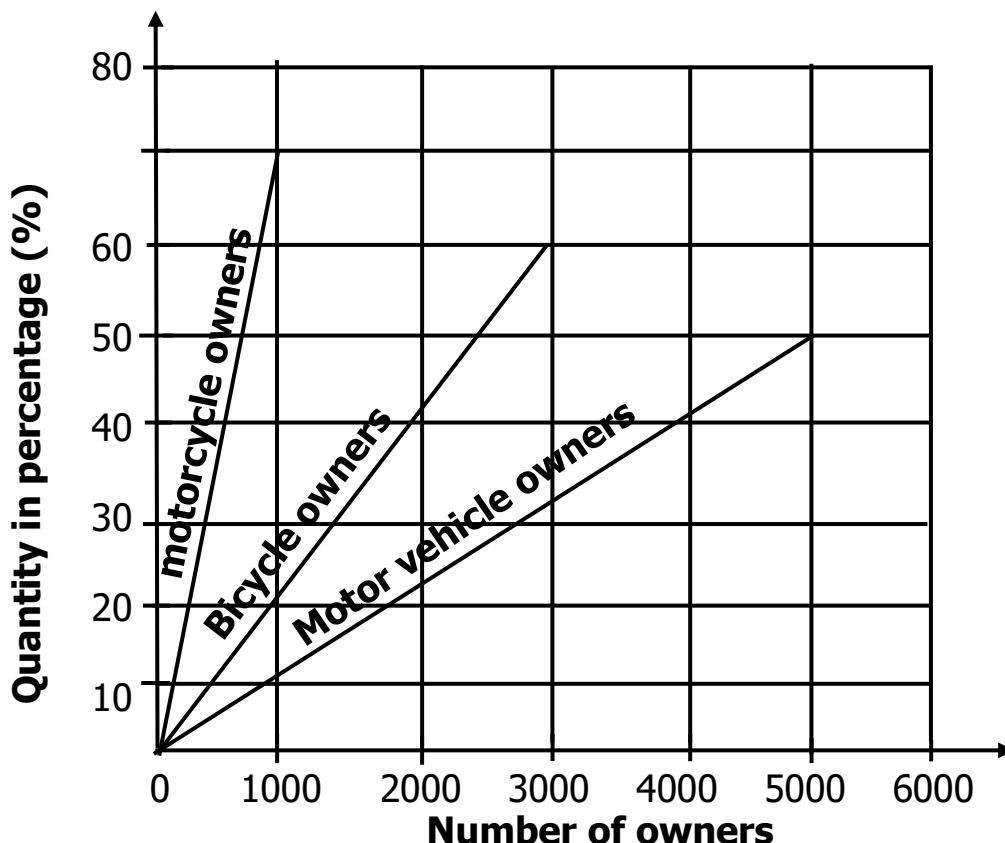
$$K + 1$$

$$(15 + 1) \text{ litres}$$

B1 for 16 litres of milk.

16 liters of milk

30. The graph below shows the means of transport and their owners in Kampala. Study it carefully and answer the questions about it correctly.



(i) What is the biggest means of transport in Kampala? (01 mark)

Motor vehicles owners

B1 for motor vehicle owners.

(ii) Find the number of bicycle owners in Kampala (02 marks)

20% represent 1000 owners

1% represents 1000 owners

M1 for correct method.

$$\begin{array}{r} 10 \\ 1000 \\ \hline 20 \end{array}$$

A1 for 7,000 bicycle owners.

50 owners

60% represent 50 owners x 60

3,000 bicycle owners

OR just use the data given (3000 owners)

(iii) Work out the average of the owners of transport means according to the graph

$$AV = \frac{\text{sum of data}}{\text{Number of data}}$$

$$AV = \frac{1000 + 3000 + 5000}{3}$$

M1 for correct method.

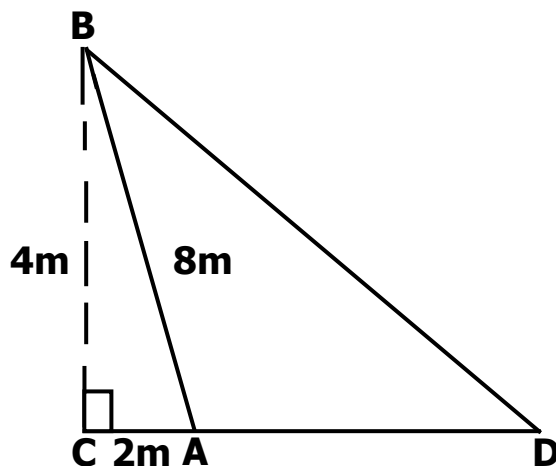
$$Av = \frac{9000}{3}$$

A1 for correct answer.

$$Av = 3,000$$

31. (a) In the figure length **CA** is a fifth of **AD**. Calculate the area of the triangle **BAD**.

(03 marks)



$$\begin{array}{l} 2m \div \frac{1}{5} \\ \frac{2m}{\frac{1}{5}} \div \frac{1}{5} \\ \frac{2m}{1} \times \frac{5}{1} \\ 10m \end{array}$$

$$\begin{array}{l} A = \frac{1}{2}bh \\ A = \frac{1}{2} \times 10m \times 4m \\ A = \frac{1}{2} \times 5m \times 4m \\ A = 5m \times 4m \\ A = 20m^2 \end{array}$$

B1 for 10m.

M1 for correct method.

A1 for 20m².

- (b) $7x$ is equal to $21y$. Find the value of y if $m = x = p = 12$.

(01mark)

$$21y = 7x$$

$$\begin{aligned}
 21y &= 7x \\
 21y &= 7 \times 12 \\
 21y &= 84 \\
 \frac{1}{21} \cdot 21y &= \frac{1}{21} \cdot 84 \\
 y &= 4
 \end{aligned}$$

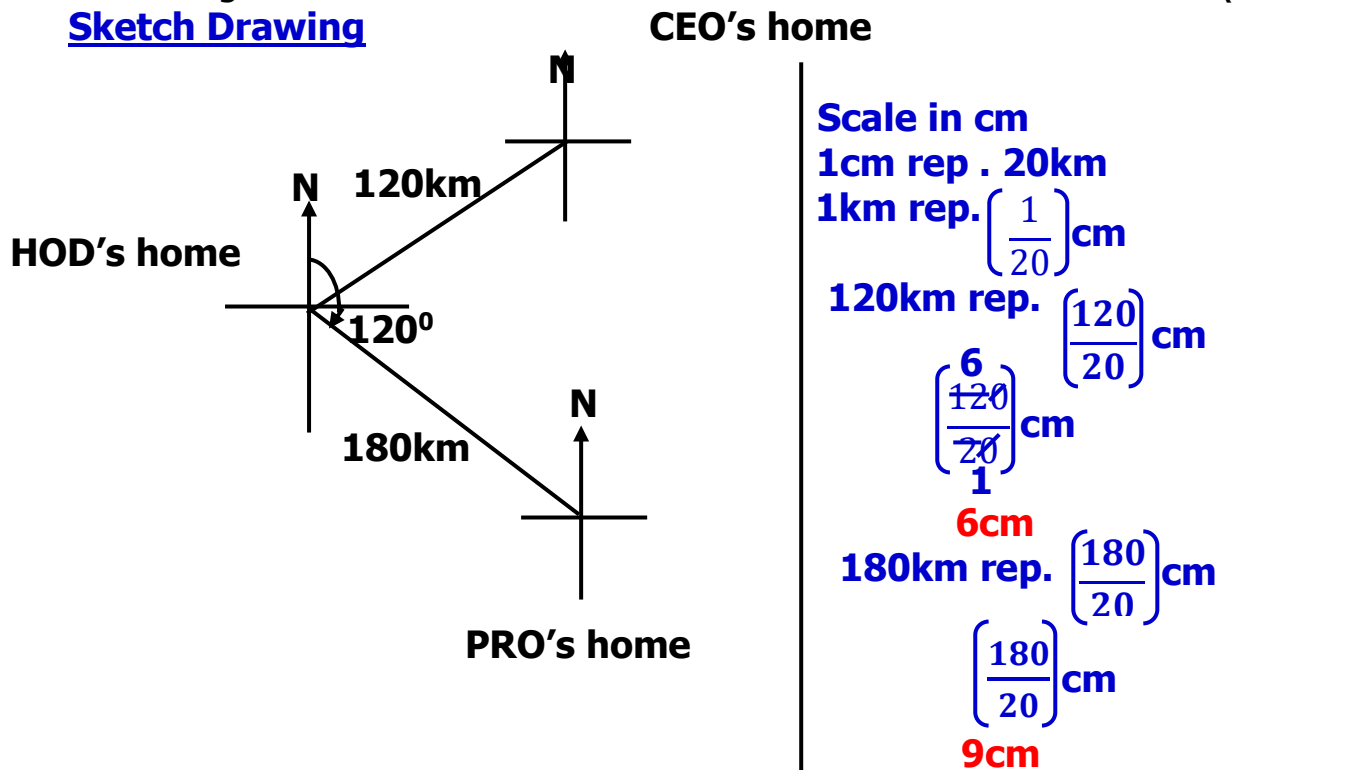
B1 for $y = 4$.

$$Y = 4$$

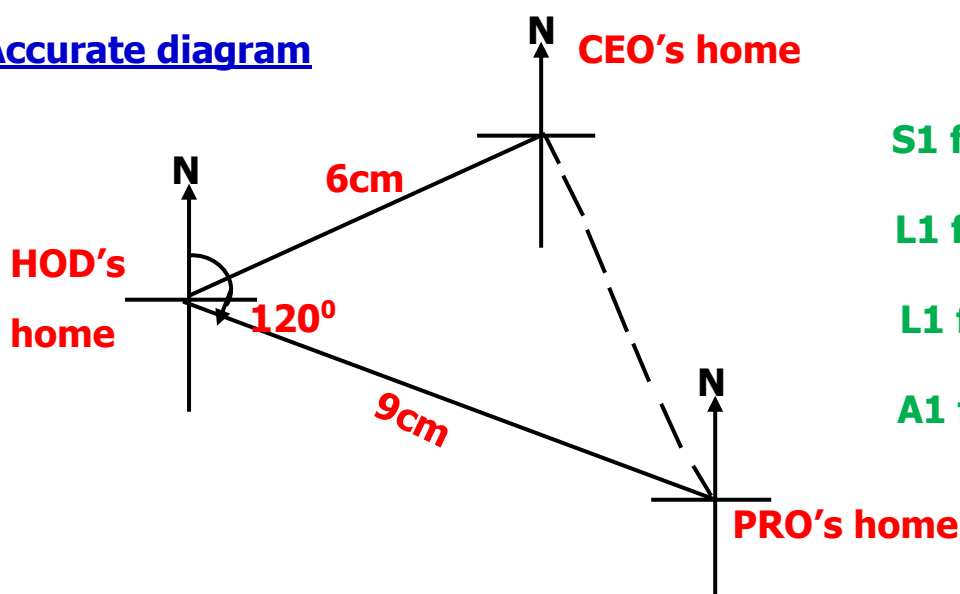
32. CEO's home is 120km in the Northeast of HOD's home. PRO's home is 180km on the bearing of 120° from HOD's home.

Using a scale of 1cm representing 20km, construct an accurate diagram showing the above information. (04 marks)

Sketch Drawing



Accurate diagram



S1 for a sketch.

L1 for 6cm.

L1 for 9cm.

A1 for 120° .

- (i) What is the actual distance between CEO's home and PRO's home?

(01 mark)

$$9.5 \text{ cm} \pm 1$$

Actual distance

1cm rep 20km

$$9.5\text{cm rep} \quad (9.5 \times 20)\text{km}$$

$$9.5\text{cm rep} \quad \left(\frac{95}{10} \times 20 \right) \text{km}$$

$$\left(\frac{95}{10} \times 20 \right) \text{km}$$

B1 for 190km

190km / 186km / 188km

(ii) What is the bearing of HOD's home from PRO's home?

(01 mark)

$$\begin{array}{r} 180^\circ \\ -120^\circ \\ \hline 60^\circ \end{array}$$

$$\begin{array}{r} 90^\circ \\ -60^\circ \\ \hline 30^\circ \end{array}$$

B1 for 300°

$$\begin{aligned} (90^\circ \times 3) + 30^\circ \\ 270^\circ + 30^\circ \\ \mathbf{300^\circ} \end{aligned}$$

OR

$$\begin{array}{r} 360^\circ \\ -60^\circ \\ \hline \mathbf{300^\circ} \end{array}$$

. . The bearing of HOD's home from PRO's home is 300°

END