1. Divide: 12 ÷ 3

$3 \overline{)12}$ (04)

$0 \times 3 = 0$, $12 - 0 = 12$

$4 \times 3 = 12$, $12 - 12 = 0$

$\therefore 12 \div 3 = 4$

$1 \div 3 = 0$

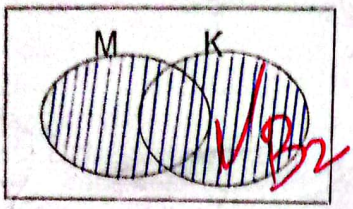
$12 \div 3 = 4$

2. Write 240 in words.

Thousands			Units		
H	T	O	H	T	O
			2	4	0

Two hundred forty

3. Shade M∪K in the venn diagram below.



4. Work out; 1.8 ÷ 0.03

$1.8 \div 0.03$

$\frac{18}{10} \div \frac{3}{100}$

$\frac{18}{10} \times \frac{100}{3}$

$\frac{6}{1} \times \frac{10}{1}$

6×10

1×1

60

1

60

5. Convert 9_{ten} to binary base

B	N	R
2	9	1
2	4	0
2	2	0
2	1	1
	0	

1001 two

6. Solve: m − 9 = 15

$m - 9 = 15$

$m - 9 + 9 = 15 + 9$

$m = 24$

7. A coin is tossed once, what is the probability of getting a tail on top?

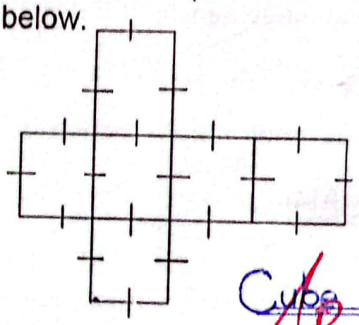
Probability = DC / TC

TC = {Head/tail} = 2

DC = {Tail} = 1

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

8. Name the shape whose net is shown below.



Cube

9. Express $\frac{2}{5}$ as a percentage.

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

$(2 \times 20)\%$

40%

10. The exchange rate of a United States dollar in Uganda is Ug shs. 3,700. Find the cost of a trouser which costs Ug shs. 888,000 in US dollars?

Ug shs. 3700 → 1 US dollar

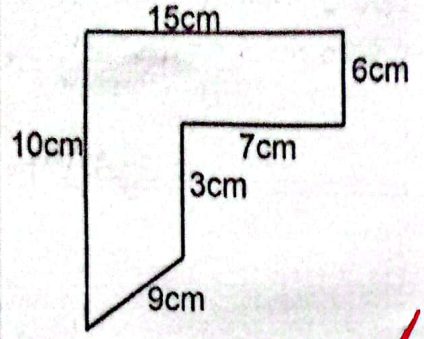
Ug shs. 888000 → $\frac{\text{Ug shs } 888000}{\text{Ug shs } 3700}$ US dollars

$= \frac{240}{1}$

= 240 US dollars

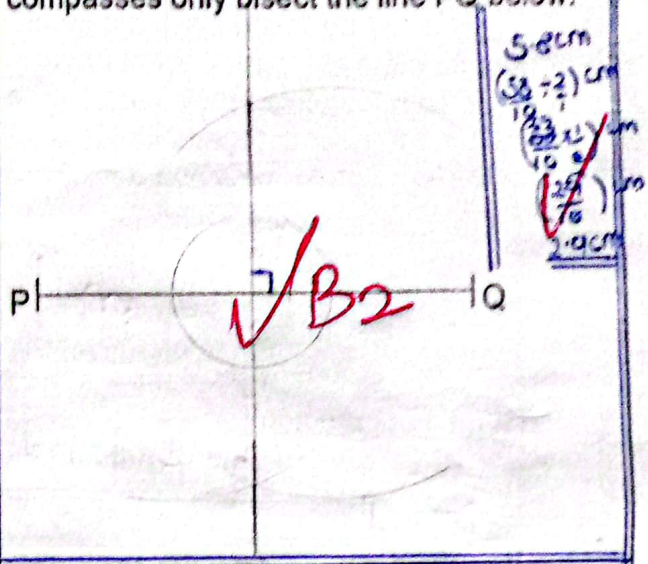
20

11. Work out the perimeter of the shape below.



Perimeter = 9cm + 3cm + 7cm + 6cm + 15cm + 10cm
= 12cm + 13cm + 25cm
= 25cm + 25cm
= 50cm

12. Using a ruler, a pencil and a pair of compasses only bisect the line PQ below.

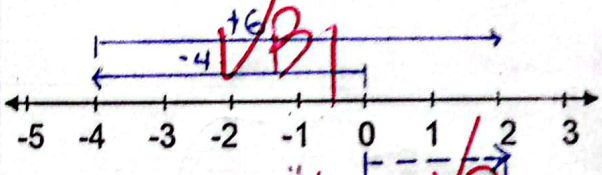


13. Use "finite set" or "infinite set" to describe the sets below.

A set of stars on the sky infinite set

A set of all counting numbers less than 20 finite set

14. Work out; $^{-}4 + {}^{+}6$ using a number line.



$\therefore {}^{-}4 + {}^{+}6 = {}^{+}2$

15. Which number was written in standard form to give $2.4 \times 10^{+3}$?

2.4×10^{3}
$\frac{24}{10} \times 10 \times 10 \times 10$
24×100
2400

16. **Simplify:** $3(5 - k) - (2k + 7)$

$3(5 - k) - (2k + 7)$
$3 \times 5 - 3 \times k - 1 \times 2k - 1 \times 7$
$15 - 3k - 2k - 7$
$15 - 7 - 3k + 2k$
$8 - 5k$

17. A drone car covered 0.08 km in only 10 seconds. Find its speed in m/s

km → m
1 km = 1000 m
0.08 km = (0.08×1000) m
$= \left(\frac{8}{100} \times 1000\right)$ m
$= (8 \times 10)$ m
= 80 m

Speed = $\frac{80\text{m}}{10\text{seconds}}$
$= \left(\frac{80}{10}\right)$ m/s
= 8 m/s

18. Prime factorise 100 and write the answer in set notation.

2	100
2	50
5	25
5	5
	1

Prime factors of 100 = {2, 2, 5, 5}

16

19. **Peter** can slash the compound in 3 hours. **Abdul** can slash the same compound in 4 hours. What fraction of the compound can they slash in one hour if they work together?

Peter slashes → 3 hours
Abdul slashes → 4 hours
In one hour
Peter slashes $\frac{1}{3}$ of the compound
Abdul slashes $\frac{1}{4}$ of the compound
Both in one hour
$\frac{1}{3} + \frac{1}{4}$ → $\frac{7}{12}$ of the compound
$\frac{4+3}{12}$

20. Convert **3500** ml to litres.

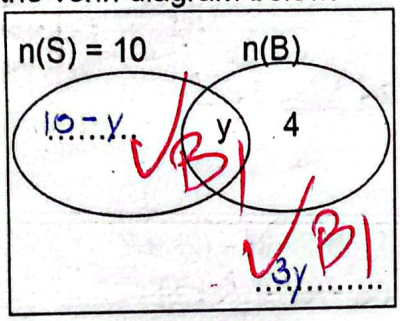
1000 ml = 1 litre
3500 ml = $\left(\frac{3500\text{ml}}{1000\text{ml}}\right)$ litres
= 3.5 litres

04

SECTION .B. (60 Marks)

21. In a meeting of members, all of them drank Mineral water (M), 10 people drank Soda (S) and Mineral water, 4 drank Beer (B) and Mineral water only, some people drank all the three drinks while 3y drank only Mineral water (M).

(a) Use the information above to complete the venn diagram below.



n(M)=26

(b) Find the value of y

$y + 3y + 4 + 10 - y = 26$
$4y - y + 4 + 10 = 26$
$3y + 14 = 26$
$3y + 14 - 14 = 26 - 14$
$\frac{3y}{3} = \frac{12}{3}$
$y = 4$

(c) How many people drunk at least two types of drinks?

$(10 - y + 4)$ people
$(10 - 4 + 4)$ people
$(6 + 4)$ people
10 people

∴ 10 people drunk at least two types of drinks (5 Marks)

05

22. **Given the numeral 27.48. Complete the table below.**

Digit	Place value	Value
2	Tens	20
7	Ones	7
4	Tenths	0.4
8	Hundredths	0.08

Value = Digit x Place value
= 8 x 1/100
= 8/100

Value = Digit x Place value
= 2 x 10
= 20

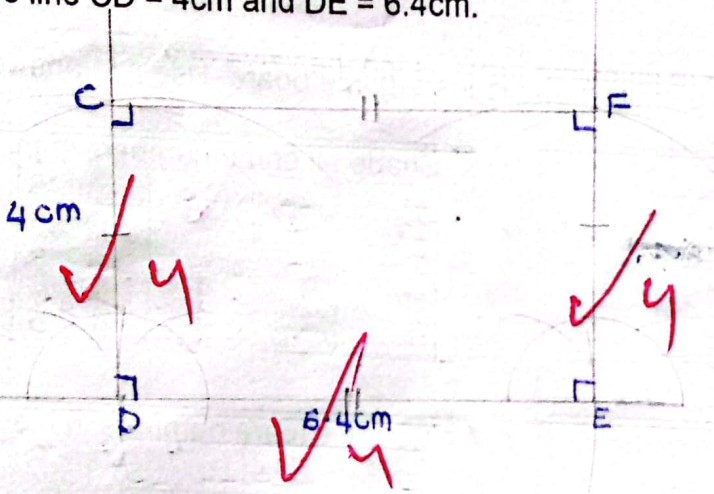
Let the place value be P
Place value x Digit = Value
P x 4 = 0.4
4P = 0.4
4P/4 = 0.4/4
P = 0.4 ÷ 4
= 4/10 ÷ 4
= 4/10 x 1/4
= 1/10

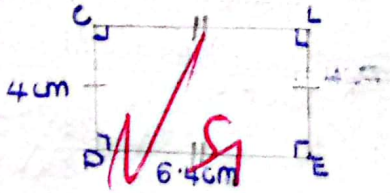
∴ The place value is Tenths

(5 Marks)

23. (a) Using a ruler, a pencil and a pair of compasses only, construct a rectangle **CDEF** where line CD = 4cm and DE = 6.4cm.

Sketch.





(b) Measure angle DFE 90°

(5 Marks)

24. A man deposited sh. 20,000 in a bank which offers an interest rate of 5% If he withdrew Sh. 24000 after some time;

(a) Calculate the simple interest he got.

SI = PRT
PRT = SI

Simple interest
Amount - P
Sh. 24000
- Sh. 20000
Sh. 4000

(b) How long did the money stay in the bank?

PRT = SI
Sh. 20000 x 5% x T = Sh. 4000
Sh. 20000 x 5/100 x T = Sh. 4000
Sh. 200 x 5 x T = Sh. 4000
Sh. 1000 T / Sh. 1000 = Sh. 4000 / Sh. 1000
T = 4 years

(4 Marks)

∴ The money stayed in the bank for 4 yrs

25. (a) **Study and complete the table below.**

Item	Quantity	Unit price	Amount
Grass hoppers	2 cups	Sh. 7000	Sh. 14000
Yellow bananas	3 clusters	Sh. 2500	Sh. 7500
Sugar	1½ kg	Sh. 4800	Sh. 7200
	Total expenditure		**Sh. 28700**

Grass hoppers (Sh. 14000) ÷ 2 = Sh. 7000

Yellow bananas Sh. 14000 + Sh. 7200 = Sh. 21200

Sh. 28700 + Sh. 21200 = Sh. 7500; (Sh. 7500 ÷ 3) clusters = Sh. 2500 ÷ 3 clusters

Sugar 1½ × Sh. 4800; 3 × Sh. 4800 ÷ 2 = 3 × Sh. 2400 = Sh. 7200

05

(b) Amanda bought all the items and was given a change of sh. 1300. How much money did she go with?

Sh. 28700 + Sh. 1300 = Sh. 30000

∴ He went with Sh. 30000

(05 Marks)

26. The table below represents a snakes and ladders game board. Use it to answer the questions that follow.

21	22	23	24	25
20	19	18	17	16
11	12	13	14	15
10	9	8	7	6
1	2	3	4	5

(a) Shade all prime numbers in the table.

21	22	23	24	25
20	19	18	17	16
11	12	13	14	15
10	9	8	7	6
1	2	3	4	5

(b) List all triangular numbers from the table.

Triangular numbers = {1, 3, 6, 10, 15, 21, ...}

(c) Tick all square numbers in the table.

21	22	23	24	25 ✓
20	19	18	17	16 ✓
11	12	13	14	15
10	9 ✓	8	7	6
1 ✓	2	3	4 ✓	5

(06 Marks)

27. (a) **Work out;**

4 + 3 = _____ (finite 5)

4 + 3 = ____ (finite 5)

4 + 3 = 7 (finite 5)

5

= 1 rem 2 (finite 5)

= 2 (finite 5)

∴ 4 + 3 = 2 (finite 5)

(b) If today is Monday, what day of the week will it be after 20 days?

day + days (finite 7)

1 + 20 (finite 7)

21 ÷ 7 (finite 7)

3 rem 0 (finite 7)

0 (finite 7)

0 stands for Sunday

It will be Sunday

(04 Marks)

28. A taxi left town **M** at 2:00pm and reached town **N** after 1 ½ hours moving at a speed of 60km/hr. It remained in town **N** for 30 minutes and later moved back to town **M** at a speed of 30km/hr.

(a) At what time did it leave town N?

Departure + Duration time from M + 30 minutes

2 : 00 + 1 30 = 3 : 30

3 : 30 + 30 = 4 : 00

∴ It left town N at 4:00pm

(b) Calculate its average speed for the whole journey.

Average speed = TDC / TTT

TDC: D = S × T = 60km/hr × 1½hrs = 60km × 3/2 = 30km × 3 = 90km

90km + 90km = 180km

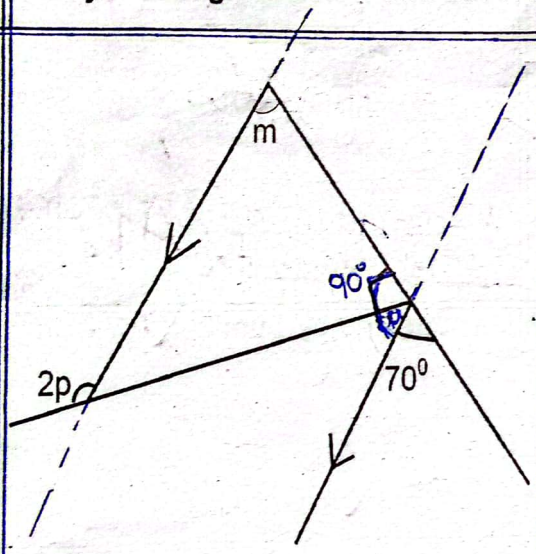
TTT: T = D/S = 90km / 30km/hr = 90km × 1/30hr = 3hrs

3 + 1½hrs = 4½ hrs

Average speed = 180km ÷ 4½hrs = 180km ÷ 9/2 hrs = (180km ÷ 9/2) km/hr = (180/1 × 2/9) km/hr = (20 × 2) km/hr = 40 km/hr

(06 Marks)

29. Study the diagram below and use it to answer the questions that follow.



Find the value of;

(i) m

Value of a: a + 90° + 70° = 180°; a + 160° = 180°; a + 160° − 160° = 180° − 160°; a = 20°

Value of m: m + 90° + a = 180° (Co-interior angles); m + 90° + 20° = 180°; m + 110° = 180°; m + 110° − 110° = 180° − 110°; m = 90°

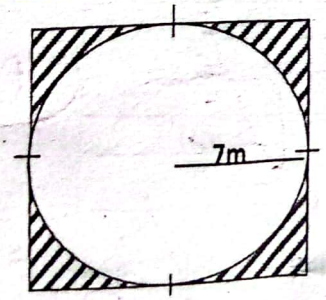
(ii) p

m + 90° = 2p; 70° + 90° = 2p; 160°/2 = 2p/2; 80° = p

p = 80°

(04 Marks)

30. The figure below shows a circle enclosed in a square. Use it to answer the questions that follow.



(a) Find the area of the circle.

(Use π as 22/7)

$A = \pi r^2$

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

$= 22 \times 7 m^2$

$= 154 m^2$

(b) Calculate the area of the shaded part.

Area of the square

D = R x 2
= 7m x 2
= 14m

Area = S x S
= 14m x 14m
= 196m² B1

Area of the circle

πr²
22/7 x 7m x 7m
1
22 x 7m²
154m² B1

Area of the shaded part

196m²
-154m²
42m² A1

14 x 14 = 56, 140, 196

05

(06 Marks)

31. **Allan** bought a phone at sh. 200,000 and later sold it to **Ian** making a profit of 15%. Ian sold the same phone to **Cathy** at a loss of 20%.

(a) How much money did **Ian** pay for the phone?

100% + 15%
115% B1
115% of sh 200,000
115/100 x sh 200,000 M1
Sh. 230000

∴ Lan paid sh 230,000 for the phone A1

05

(b) How much loss did Ian make after selling the phone?

20% of sh 230000
20/100 x sh 230,000 M1
20 x sh 2300
sh 46000

∴ Lan made a profit of sh 46000 after selling the phone A1

(05 Marks)

32. **The table below shows the number of Oranges collected by pupils of P.7 from school farm.**

No. of Oranges	12	12	B K	15	5	8
No. of pupils	3	2	5	4	6	0

(a) If the mean number of Oranges collected was 9, find the value of K?

Sum of oranges / Number of pupils = Mean

(12x3)+(12x2)+(Kx5)+(15x4)+(5x6)+(8x0) / 3+2+5+4+6+0 = 9

36+24+5K+60+30+0 / 20 = 9 x 2/0 M1

20 x 5K+150/20 = 9 x 20

5K+150 = 180

5K+150-150 = 180-150

5K/5 = 30/5 M1

K = 6 A1

36
24
60
30
+ 0
150

END

(b) What is the modal number of Oranges collected?

No. of oranges	No. of pupils (Frequency)
12	3
12	2
5	5
15	4
5	6
8	0

05

Modal The modal number of oranges is 5 B1

(05 Marks)