



SUREKEY EXAMINATIONS BOARD

PRE-PLE UNIQUE, SERIES

2022

MATHEMATICS MARKING GUIDE

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**“Don’t speak for Quality, Let the Quality Speak
for itself”**

SECTION A: 40 MARKS

Answer **all** questions in this Section
Questions **1** to **20** carry two marks each

1. Workout: $215 + 45$.

1

215

+

45

260

$5 + 5 = 10$

$1 + 1 + 4 = 6$

2. Write 225,566 in words.

Thousands			units		
2	2	5	5	6	6

Two hundred twenty five thousand, five hundred sixty six.....

3. Workout: $-5 + +2$

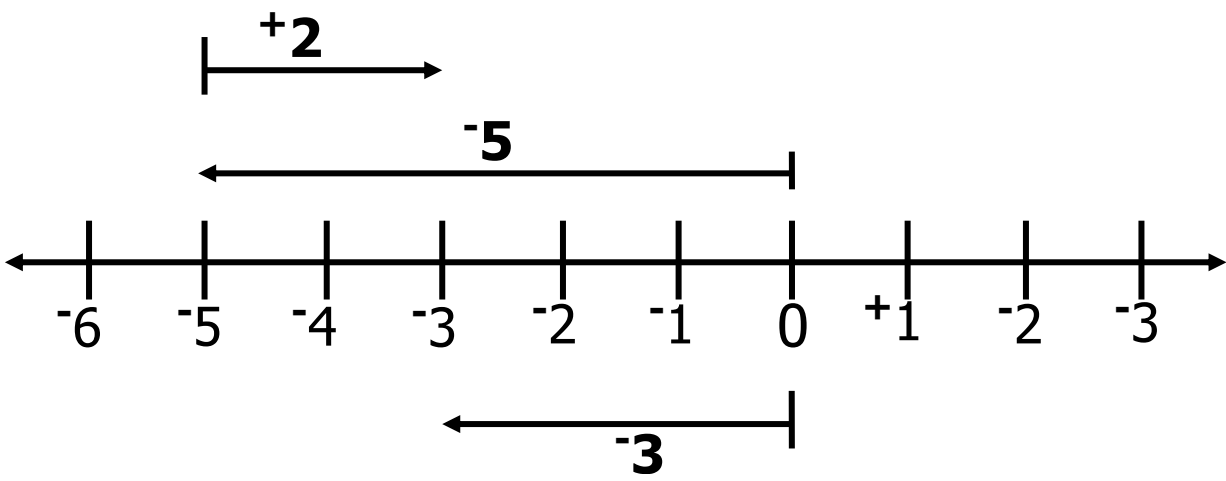
$= -5 + (+2)$

$= -5 + 2$

$= -3$

METHOD II

Using a number line



$-5 + +2 = -3$

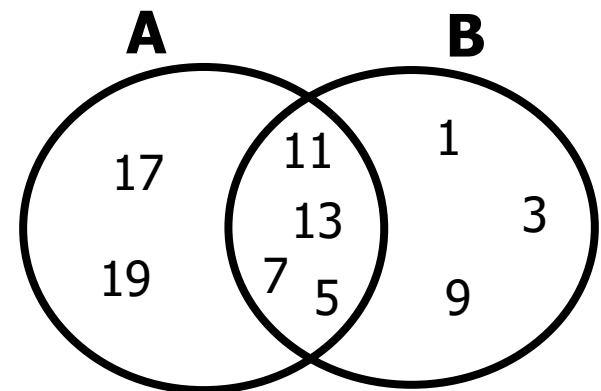
4. Given that, Set A = {prime numbers between 4 and 20}
Set B = {odd numbers less than 15}. Find $n(A - B)$

$$\begin{aligned} A &= \{ \underline{5}, \underline{7}, \underline{11}, \underline{13}, 17, 19 \} \\ B &= \{ 1, 3, \underline{5}, \underline{7}, 9, \underline{11}, \underline{13} \} \\ A - B &= \{ 17, 19 \} \end{aligned}$$

$$\underline{n(A - B) = 2}$$

METHOD II

$$\begin{aligned} A &= \{ \underline{5}, \underline{7}, \underline{11}, \underline{13}, 17, 19 \} \\ B &= \{ 1, 3, \underline{5}, \underline{7}, 9, \underline{11}, \underline{13} \} \end{aligned}$$



$$A - B = \{ 17, 19 \}$$

$$\underline{n(A - B) = 2}$$

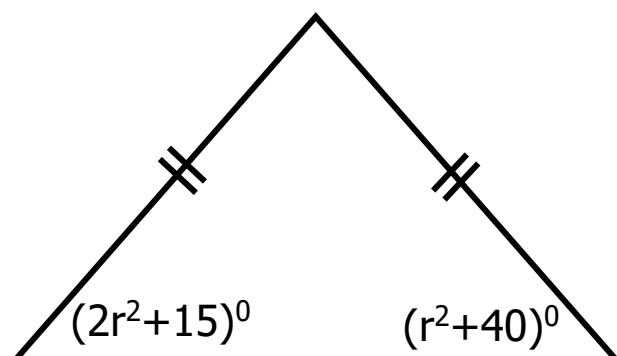
5. Find the next number in the sequence below.

1, 8, 27, 64, ...**125**...

Cube numbers

$$\begin{aligned} 1^3 &= 1 \times 1 \times 1 = 1 \\ 2^3 &= 2 \times 2 \times 2 = 8 \\ 3^3 &= 3 \times 3 \times 3 = 27 \\ 4^3 &= 4 \times 4 \times 4 = 64 \\ 5^3 &= 5 \times 5 \times 5 = 125 \end{aligned}$$

6. Workout the value of r in the figure below.



$$(2r^2 + 15)^\circ = (r^2 + 40)^\circ$$

$$2r^2 + 15 = r^2 + 40$$

$$2r^2 + 15 - 15 = r^2 + 40 - 15$$

$$2r^2 - r^2 = r^2 - r^2 + 25$$

$$\cancel{\sqrt{r^2}} = \cancel{\sqrt{25}}$$

$$\underline{r = 5}$$

7. During a debate, each side gave 20 views. If the secretary was awarding 3 points for every defended view and deducting a point for every opposed view. How many views did the proposers defend if their final score was 72 points?

Total number of views = 20 x 2

= 40 views

Let the number of defended views be y

Number of opposed views

= $40 - y$

(Awarded points x views) – (deducted points x views = final score)

$3(y) - 1(40 - y) = 72$

$3y - 40 + y = 72$

$3y + y - 40 = 72$

$4y - 40 + 40 = 72 + 40$

$4y = 112$

$4 = 4$

$y = 28$ points

8. A father is m years older than his 12 year old son. In 17 years time, the father will be twice as old as his son. How old is the father now?

son	father	
12	$12 + m$	now
$12 + 17$	$29 + m$	After 17 yrs

After 17 years, father will be twice

$29 + m = 2(29)$
 $29 + m = 58$
 $29 - 29 + m = 58 - 29$
 $m = 29$

Father's age now

= $12 + m$

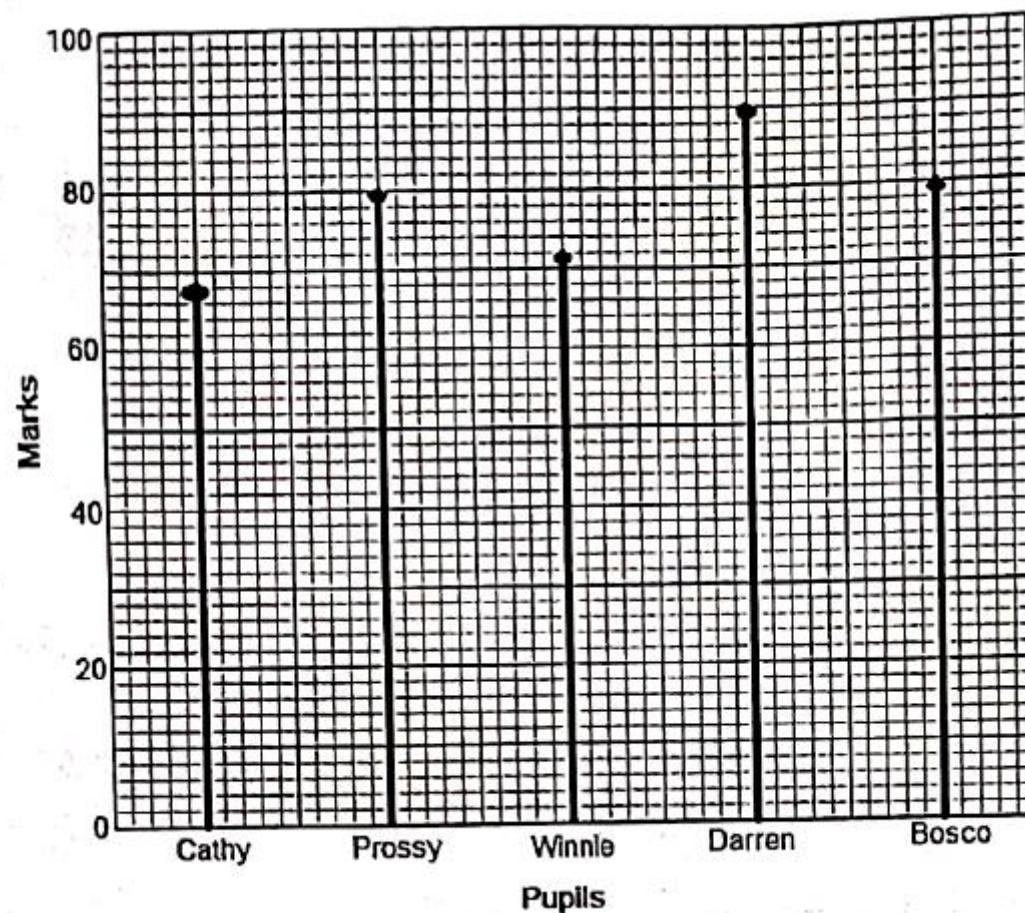
= $12 + 29$

= 41 years

9. Convert $2,500,000\text{cm}^3$ to m^3 .

$1\text{m} = 100\text{cm}$
 $1\text{m}^3 = 100\text{cm} \times 100\text{cm} \times 100\text{cm}$
 $1\text{m}^3 = 1,000,000\text{cm}^3$
 $1,000,000\text{cm}^3 = 1\text{m}^3$
 $2,500,000\text{cm}^3 = \frac{2500000\text{cm}^3}{1000000\text{cm}^3}$
 $= \frac{25}{10}$
 $= \underline{2.5\text{m}^3}$

10. The graph below shows marks scored by the pupils in a Mathematics test.



Work out mean mark of the class.

$$\text{Mean} = \frac{\text{Total sum}}{\text{Total number}}$$

$$= \frac{68 + 80 + 72 + 90 + 80}{5}$$

$$= \frac{390}{5}$$

$$= 78 \text{ marks}$$

11. A doctor gave a patient a bottle full of pills and prescribed 2 pills to be taken three times a day for 9 days. How many pills were left in the bottle by the end of the seventh day?

Pills taken a day

$$= 2 \times 3$$

$$= \underline{6 \text{ pills}}$$

Pills taken in 9 days

$$= 6 \times 9$$

$$= \underline{54 \text{ pills}}$$

Pills taken in 7 days

$$= 6 \times 7$$

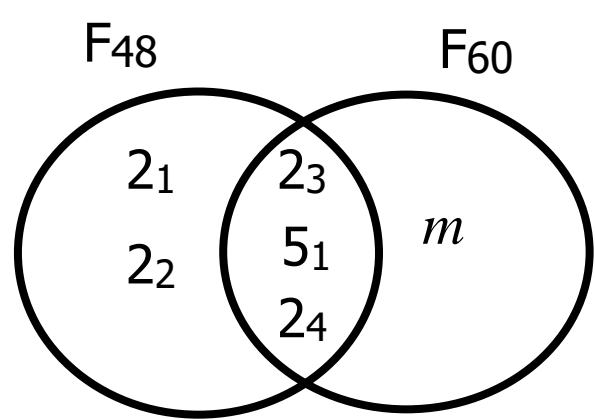
$$= \underline{42 \text{ pills}}$$

Pills left by the end of the seventh day

$$= 54 - 42$$

$$= \underline{12 \text{ pills}}$$

12. Find the value of m in the Venn diagram below.



$$\begin{aligned} \{ 2_3, 5_1, 2_4, m \} &= F_{60} \\ 2 \times 5 \times 2 \times m &= 60 \\ 20 \times m &= 60 \\ \frac{20m}{20} &= \frac{60}{20} \\ m &= 3 \end{aligned}$$

13. A plane takes 7 hours to cover a distance of 28000km. how long will it take to cover 64000km travelling at the same speed?

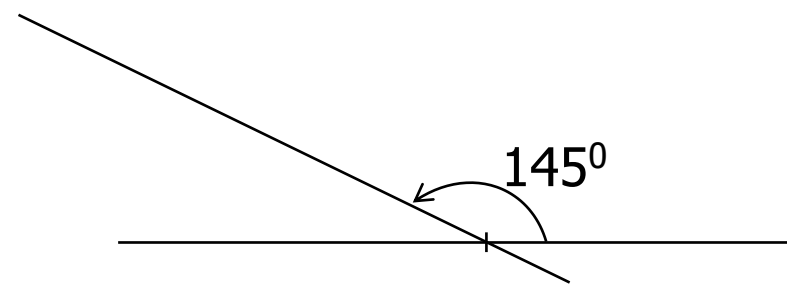
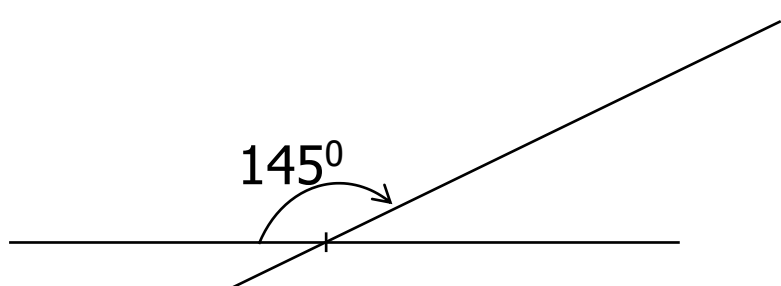
$$\begin{aligned} 7\text{hrs} &= 28000\text{km} \\ 1\text{hr} &= \frac{28000\text{km}}{7} \\ &= 4000\text{km} \\ 4000\text{km} &= 1\text{hr} \\ 64000\text{km} &= \frac{64000}{4000} \\ &= 16\text{hrs} \end{aligned}$$

METHOD II

$$\begin{aligned} &= \frac{64000\text{km}}{28000\text{km}} \times 7\text{hrs} \\ &= \frac{64}{28} \times 7 \\ &= 16\text{hours} \end{aligned}$$

14. Using a ruler, a pencil and a protractor only, draw an angle of 145° in the space provided below.

OR



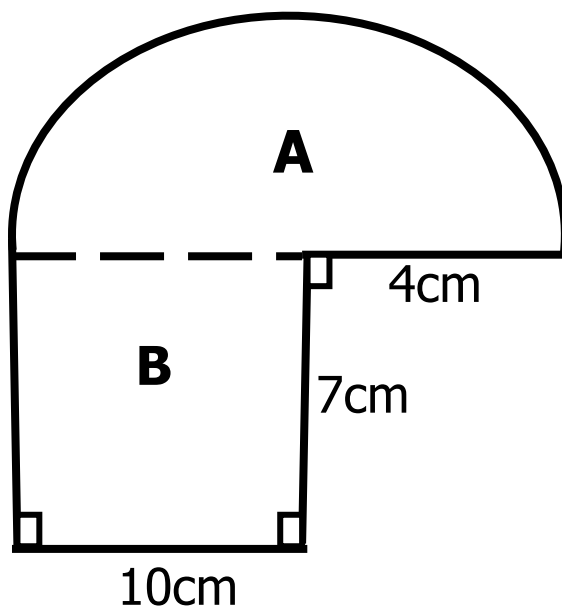
15. Workout: $3\frac{1}{2} \div 1\frac{3}{4}$.

$$\begin{array}{r} \frac{7}{2} \div \frac{7}{4} \\ \frac{7}{2} \times \frac{4}{7} \\ \hline 2 \end{array}$$

2

16. Calculate the total area of the figure below.

(Use $\frac{22}{7} = \pi$)



Area of figure A

$$\begin{aligned}\text{Diameter} &= 10\text{cm} + 4\text{cm} \\ &= \underline{14\text{cm}}\end{aligned}$$

$$\begin{aligned}\text{Radius} &= \frac{14\text{cm}}{2} \\ &= 7\text{cm}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \pi r^2 \\ &= \frac{1}{2} \times \frac{11}{7} \times \frac{1}{7} \text{cm} \times 7\text{cm} \\ &= 11 \times 7 \text{ cm} \times \text{cm} \\ &= \underline{\underline{77\text{cm}^2}}\end{aligned}$$

Area of figure B

$$\begin{aligned}\text{Area} &= L \times W \\ &= 10\text{cm} \times 7\text{cm} \\ &= \underline{70\text{cm}^2}\end{aligned}$$

Area of the figure

$$= 70\text{cm}^2$$

$$= + 77\text{cm}^2$$

147cm²

17. The sum of four consecutive counting numbers is 46. What is $\frac{1}{5}$ of the first number?

Let the first be y

1 st	2 nd	3 rd	4 th	Sum
y	$y + 1$	$y + 2$	$y + 3$	46

$$\begin{aligned}
 y + y + 1 + y + 2 + y + 3 &= 46 \\
 Y + y + y + y + 1 + 2 + 3 &= 46 \\
 4y + 6 &= 46 \\
 4y + 6 - 6 &= 46 - 6 \\
 4y &= 40 \\
 y &= 10
 \end{aligned}$$

$$\begin{aligned}
 \text{First number} &= y \\
 &= \frac{10}{5} \\
 &= 2
 \end{aligned}$$

18. The clock face below shows the time at which P.7 pupils at Kabulindi P/S wake up for morning preps.



Write the time in 24-hours system.

Morning time = 3:50am

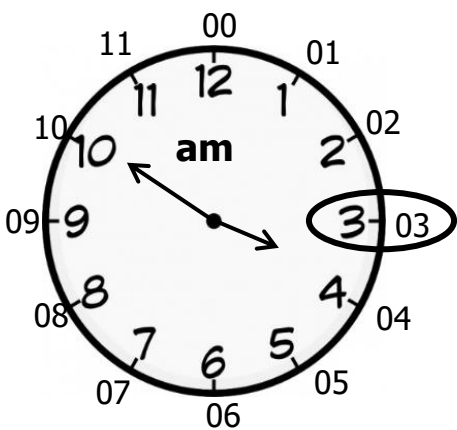
In 24 hour system

$$\begin{array}{rcl}
 & \text{HRS} & \text{MIN} \\
 & 3 & 50 \\
 + & 0 & 00 \\
 \hline
 & 3 & 50 \\
 \hline
 = & \underline{0350\text{HRS}} &
 \end{array}$$

METHOD II

Morning time = 3:50am

In 24 hour system



$$= 0350\text{HRS}$$

19. Express $\frac{9}{11}$ as a recurring decimal

$$\begin{array}{r}
 0.8181... \\
 11 \overline{) 9.0000} \\
 \underline{- 0} \\
 8 \\
 \underline{90} \\
 \\
 \underline{- 88} \\
 1 \\
 \underline{20} \\
 \\
 \underline{- 11} \\
 8 \\
 \underline{90} \\
 \\
 \underline{- 88} \\
 1 \\
 \underline{20} \\
 \\
 \underline{- 11} \\
 9
 \end{array}$$

= 0.8181...

20. Water in a 20 litre jerycan leaks at a rate of half a litre every 40 minutes. How much water will be left in the jerycan after 4 hours?

First change 4hrs to minutes

$$\begin{aligned}
 1 \text{ hr} &= 60 \text{ min} \\
 4 \text{ hrs} &= 60 \times 4 \\
 &= \underline{240 \text{ minutes}}
 \end{aligned}$$

Litres leaked in 4hours

$$\begin{aligned}
 40 \text{ minutes} &\longrightarrow \frac{1}{2} \text{ litre} \\
 1 \text{ minute} &\longrightarrow \frac{1}{2} \div \frac{40}{1} \\
 &\longrightarrow \frac{1}{2} \times \frac{1}{40} \\
 &= \frac{1}{80} \text{ litres} \\
 240 \text{ minutes} &\longrightarrow \frac{1}{80} \times \overset{3}{240} \\
 &= \underline{3 \text{ litres}}
 \end{aligned}$$

Litres left after 4 hours

$$\begin{aligned}
 &= 20 \text{ litres} - 3 \text{ litres} \\
 &= \underline{17 \text{ litres}}
 \end{aligned}$$

METHOD II

First change 4hrs to minutes

$$\begin{aligned}
 1 \text{ hr} &= 60 \text{ minutes} \\
 4 \text{ hrs} &= 4 \times 60 \\
 &= \underline{240 \text{ minutes}}
 \end{aligned}$$

Litres leaked in 4 hours

$$\begin{aligned}
 &\overset{6}{\cancel{240}}^3 \\
 &= \frac{\cancel{240}}{40_1} \times \frac{1}{2_1} \\
 &= \underline{3 \text{ litres}}
 \end{aligned}$$

Water left after 4 hours

$$\begin{aligned}
 &= 20 \text{ litres} - 3 \text{ litres} \\
 &= \underline{17 \text{ litres}}
 \end{aligned}$$

SECTION B: 60 MARKS

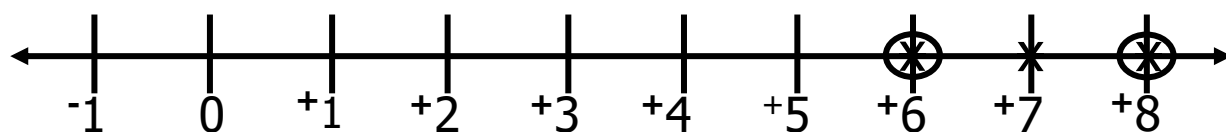
Answer **all** questions in this section
Marks for each question are indicated in brackets.

21. (a) Solve: $\frac{2x-1}{3} = \frac{x+3}{2}$ (03 Marks)

$$\begin{aligned}\text{LCD} &= 6 \\ \frac{2}{6} \times \frac{2x-1}{3_1} &= \frac{3}{6} \times \frac{x+3}{2_1} \\ 2(2x-1) &= 3(x+3) \\ 4x-2 &= 3x+9 \\ 4x-2+2 &= 3x+9+2 \\ 4x &= 3x+11 \\ 4x-3x &= 3x-3x+11 \\ \underline{x} &= \underline{11}\end{aligned}$$

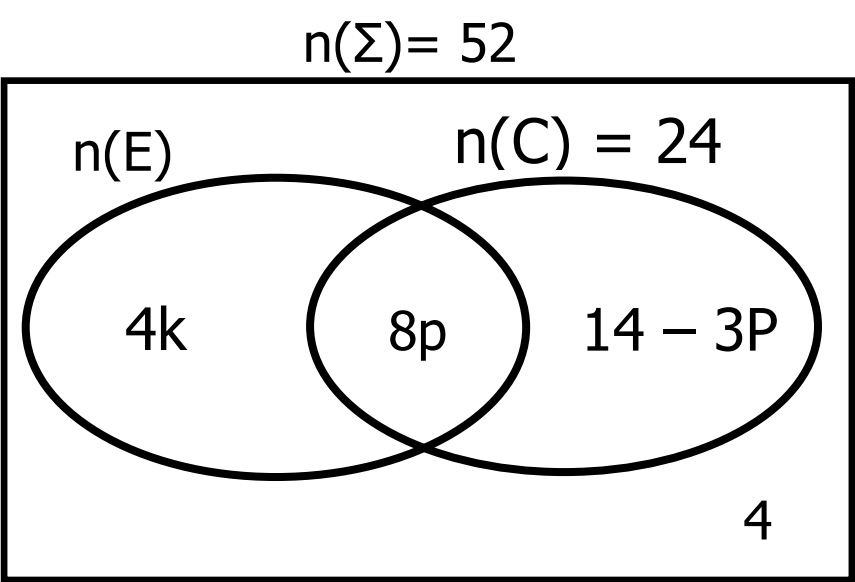
(b) Solve the inequality and write the solution set; $18 \leq 3n \leq 24$. (02 Marks)

$$\begin{aligned}\frac{6}{\cancel{18}} &\leq \frac{1}{\cancel{3n}} \leq \frac{8}{\cancel{24}} \\ 3 &3 \quad 3 \\ 6 &\leq n \leq 8\end{aligned}$$



$$\underline{n:n = \{6, 7, 8\}}$$

22. Study the Venn diagram below carefully and answer the questions that follow.



(a) Find the value of **p**. (02 Marks)

$$\begin{aligned} 8p + 14 - 3p &= 24 \\ 8p - 3p + 14 &= 24 \\ 5p + 14 &= 24 \\ 5p + 14 - 14 &= 24 - 14 \\ 5p &= 10 \end{aligned}$$

$$\begin{array}{rcl} \overset{1}{5p} & = & \overset{2}{10} \\ \hline 5_1 & & 5_1 \\ p & = & 2 \end{array}$$

(b) Determine the value of **k**. (02 Marks)

$$\begin{aligned} 4k + 8p + 14 - 3p + 4 &= 52 \\ 4k + (8 \times 2) + 14 - (3 \times 2) + 4 &= 52 \\ 4k + 16 + 14 - 6 + 4 &= 52 \\ 4k + 28 &= 52 \\ 4k + 28 - 28 &= 52 - 28 \\ \overset{1}{4k} &= \overset{6}{24} \\ \hline 4 & 4_1 \\ k &= 6 \end{aligned}$$

METHOD II

$$\begin{aligned} 4k + 24 + 4 &= 52 \\ 4k + 28 &= 52 \\ 4k + 28 - 28 &= 52 - 28 \\ \overset{1}{4k} &= \overset{6}{24} \\ \hline 4_1 & 4_1 \end{aligned}$$
$$\begin{array}{rcl} k & = & 6 \end{array}$$

(c) Find $n(C - E)'$ (02 Marks)

$$\begin{aligned} n(C - E)' &= 4k + 8p + 4 \\ &= (4 \times 6) + (8 \times 2) + 4 \\ &= 24 + 16 + 4 \\ &= \underline{\underline{44}} \end{aligned}$$

23. (a) Work out: $\begin{array}{r} 1\ 1\ 4_{\text{five}} \\ +\ 2\ 3_{\text{five}} \\ \hline 2\ 0\ 2_{\text{five}} \end{array}$ (02 Marks)

$$\begin{aligned} 4 + 3 &= 7 \\ 7 \div 5 &= 1 \text{ rem } 2 \\ 1 + 2 + 2 &= 5 \\ 5 \div 5 &= 1 \text{ rem } 0 \\ 1 + 1 &= 2 \end{aligned}$$

(b) Term Three started on Monday. On which day of the week will the term end if the whole term will last for 95 days? (02 Marks)

$$\begin{aligned} \text{Days} + \text{day} &= \underline{\hspace{1cm}} \text{ (finite 7)} \\ 95 + 1 &= \underline{\hspace{1cm}} \text{ (finite 7)} \\ 96 \div 7 &= 13 \text{ rem } 5 \text{ (finite 7)} \\ &= 5 \text{ (finite 7)} \end{aligned}$$

The term will end on Friday

24. Nakityo distributed her wealth of sh.5,400,000 to her three daughters. Stella got $\frac{1}{4}$ of what Jane got and Sarah got half of what Stella and Jane got. How much wealth did each daughter get? (06 Marks)

Let Jane's share be y	$\frac{y}{4} + \frac{y}{1} + \frac{5y}{8} = \text{sh. } 5,400,000$	<u>Stella's share</u>
Stella = $\frac{1y}{4}$	$\frac{2y + 8y + 5y}{8} = \text{sh. } 5,400,000$	$= \frac{1}{4} \times \text{sh. } \overset{720,000}{2,880,000}$
Sarah = $\frac{1}{2}$ of $(\frac{y}{1} + \frac{y}{4})$	$\frac{15y}{8} \times 8^1 = \text{sh. } 5,400,000 \times 8$	$= \text{sh. } 720,000$
$= \frac{1}{2} \times \frac{5y}{4}$	$\frac{8^1}{1} \frac{15y}{8} = \text{sh. } \overset{2,880,000}{43,200,000}$	<u>Sarah's share</u>
$= \frac{5y}{8}$	$\frac{15^1}{Y} = \text{sh. } \overset{15^1}{2,880,000}$	$= \text{sh. } 2,880,000$
	<u>Jane's share</u>	$+ \text{sh. } 720,000$
	$= \text{sh. } \underline{\underline{2,880,000}}$	$\text{sh. } \underline{\underline{3,600,000}}$
		$\overset{1,800,000}{= \text{sh. } \underline{\underline{3,600,000}}}$
		$\frac{2^1}{= \text{sh. } \underline{\underline{1,800,000}}}$

25. Study the price list below and answer the questions that follow.

Guava	3 for 1 US dollar
Orange	5 for 1 US dollar
Mango	2 for 1 US dollar

What is the total cost of 5 oranges, 9 guavas and 4 mangoes in Uganda Shillings if the exchange rate is 1 US \$ = Ugsh.3654? (03 Marks)

<u>Cost of oranges</u> = Ugsh. 3654	<u>Total cost of all the fruits</u> = sh. 10962
<u>Cost of Guavas</u> $\begin{array}{r} 3 \\ 9 \\ 3 \\ 1 \end{array} \times \text{Ugsh. 3654}$ = <u>Ugsh. 10962</u>	sh. 3654 + sh. 7308 <hr/> sh.21924
<u>Cost of mangoes</u> $\begin{array}{r} 2 \\ 4 \\ 2 \\ 1 \end{array} \times \text{Ugsh. 3654}$ = <u>Ugsh. 7308</u>	

26. The exterior angle of a regular polygon is 60° less than its interior angle.

(a) Name the polygon. (03 Marks)

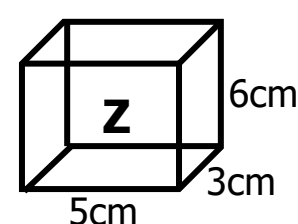
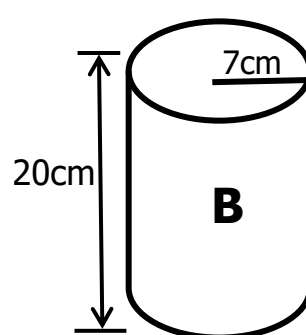
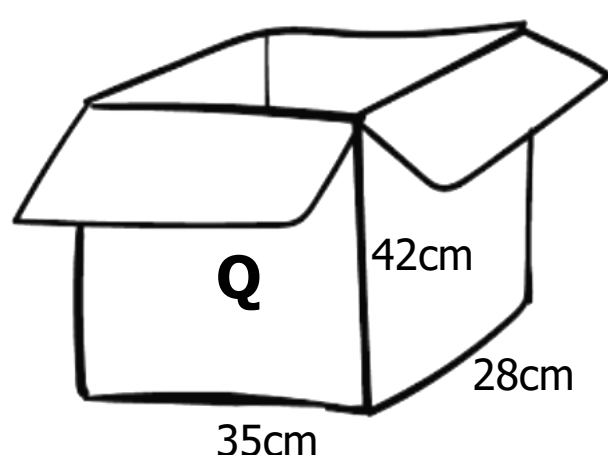
<u>Let the interior angle be y</u>	Exterior angle = $y - 60^\circ$
<u>Exterior angle</u> = $y - 60^\circ$	= $120^\circ - 60^\circ$
Int \angle + ext \angle = 180°	= <u>60°</u>
$y + y - 60^\circ = 180^\circ$	<u>Number of sides</u>
$2y - 60^\circ = 180^\circ$	= <u>sum of all exterior angles</u>
$2y - 60^\circ + 60^\circ = 180^\circ - 60^\circ$	size of one exterior angle
$\begin{array}{r} 1 \\ 2y \end{array} = \begin{array}{r} 60^\circ \\ 120^\circ \end{array}$	= <u>$\frac{360^\circ}{60^\circ}$</u>
$\begin{array}{r} 2 \\ 1 \end{array} = \begin{array}{r} 2 \\ 1 \end{array}$	= <u>6sides</u>
<u>y = 60°</u>	= <u>Hexagon</u>

(b) Calculate its interior angle sum.

(02 Marks)

$$\begin{aligned}\text{Interior angle sum} &= 180^0(n - 2) \\ &= 180^0(6 - 2) \\ &= 180^0 \times 4 \\ &= \underline{\underline{720^0}}\end{aligned}$$

27. Two groups were tasked to pack cylindrical tins of size **B** and small boxes of size **Z** in big box of size **Q**.



- (a) How many layers of boxes **Z** will fill in big box **Q**? (01 Mark)

Along the height

$$= \frac{42\text{cm}}{6\text{cm}}$$

$$= 7$$

$$= \underline{\underline{7\text{ layers}}}$$

- (b) How many cylindrical tins of size **B** will fit in big box **Q**? (02 Marks)

Diameter of cylinder

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

$$= \underline{\underline{14\text{cm}}}$$

Along the length

$$= \frac{35\text{cm}}{14\text{cm}}$$

$$= 2$$

$$= \underline{\underline{2\text{ tins}}}$$

Along the width

$$= \frac{28\text{cm}}{14\text{cm}}$$

$$= 2$$

$$= \underline{\underline{2\text{ tins}}}$$

Along the height

$$= \frac{42\text{cm}}{20\text{cm}}$$

$$= 2$$

$$= \underline{\underline{2\text{ layers}}}$$

Number of tins packed

$$= 2 \times 2 \times 2$$

$$= \underline{\underline{8\text{ tins}}}$$

METHOD II

= Along (L x W x H)

$$= \frac{35\text{cm}}{14\text{cm}} \times \frac{28\text{cm}}{14\text{cm}} \times \frac{42\text{cm}}{20\text{cm}}$$

$$= 2 \times 2 \times 2$$

$$= \underline{\underline{8\text{ tins}}}$$

- (c) Calculate the space that will remain unfilled in big box **Q** when small boxes of size **Z** are fully packed. (03 Marks)

<u>Number of boxes packed</u>	= 7 x 9 x 7	<u>Space left</u>
<u>Along the length</u>	= <u>441 boxes</u>	= 41160cm ³
= $\frac{7}{35\text{cm}}$	<u>Volume of boxes packed</u>	= <u>39690cm³</u>
$\frac{5\text{cm}_1$	Volume = L x W x H	<u>1470cm³</u>
= <u>7boxes</u>	= 5cm x 3cm x 6cm	
<u>Along the width</u>	= <u>90cm³</u>	
= $\frac{9}{28\text{cm}}$	= 90cm ³ x 441	
$\frac{3\text{cm}_1$	= <u>39690cm³</u>	
= <u>9boxes</u>	<u>Volume of big box</u>	
<u>Along the height</u>	Volume = L x W x H	
= $\frac{7}{42\text{cm}}$	= 35cm x 28cm x 42cm	
$\frac{6\text{cm}_1$	= <u>41160cm³</u>	
= <u>7layers</u>		

28. Kafeero bought a T.V set and sold it to Dan for sh.345,000 making a profit of 15%. Dan then sold it to Kyampaire at a loss of 5%.

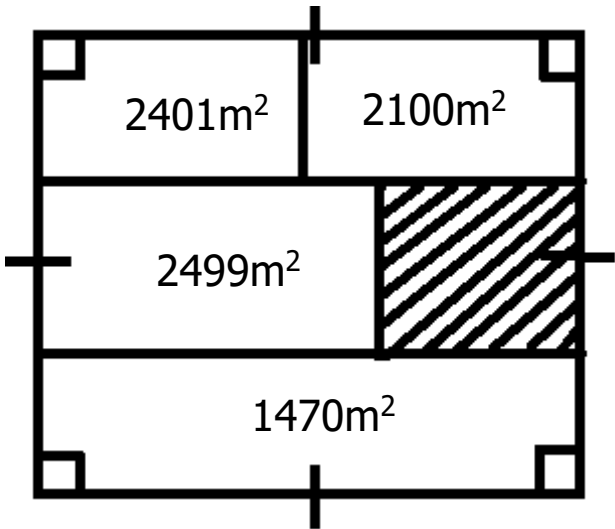
- (a) How much did Kafeero buy the T.V set? (02 Marks)

<u>New percentage</u>	$\frac{1}{115y}$	= $\frac{300,000}{\text{sh.34,500,000}}$
= 100% + 15%	$\frac{115}{1}$	$\frac{115}{1}$
= 115%	y	= sh. 300,000
<u>Let the amount he bought be y</u>	<u>Therefore, Kafeero bought the</u>	<u>T.V sh.300,000</u>
$\frac{115}{100} \times y = \text{sh.345,000}$		
$\frac{115y}{100} \times \frac{1}{100} = \text{sh.345,000} \times 100$		

- (b) How much did Kyampaire pay for the T.V set? (02 Marks)

<u>Percentage paid</u>	= $\frac{95}{100} \times \text{sh. 345,000}$	<u>Therefore, Kyampaire</u>
= 100% - 5%	$\frac{100}{1}$	<u>paid sh. 327,750</u>
= 95%	= sh. 95 x 3450	
<u>Amount paid</u>	= <u>sh. 327,750</u>	

29. Senkomago bought a square piece of land of side 100m and started selling it in rectangular plots leaving one plot shaded in the figure below.



- (a) Calculate the area of the shaded plot of land in square metres. (03 Marks)

<u>Area of of the piece of land</u> 100m x 100m = 10,000m ² <u>Area of 4 rectangular plots</u> = 2401m ² 2499m ² 1470m ² + 2100m ² <u>8470m²</u>	<u>Area of shaded rectangular plot</u> = 10,000m ² - 8,470m ² <u>1,530m²</u>
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- (b) How much did Senkomago get from the sale of all plots if he was selling each square metre at Sh.2000? (02 Marks)

Area = 10,000m ² 1m ² = sh.2000 10,000m ² = sh. 2000 x 10,000 = <u>sh.20,000,000</u> <u>METHOD II</u> <u>Amount from each rectangular plot</u> 1m ² = sh.2000 2401m ² = sh.2000 x 2401 = <u>sh.4, 802,000</u> 2499m ² = 2499 x sh.2000 = <u>sh. 4,998,000</u>	1470m ² = 1470 x sh.2000 = <u>sh. 2,940,000</u> 2100m ² = 2100 x sh.2000 = <u>sh.4,200,000</u> 1530m ² = 1530 x sh.2000 = sh.3,060,000 <u>Total amount for all the plots</u> = sh. 4,802,000 sh. 4,998,000 sh. 2,940,000 sh. 4,200,000 + sh. 3,060,000 <u>sh. 20,000,000</u>
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30. The table below shows performance of the 120 candidates that sat for 2020 PLE at Twalibah Islamic Primary School.

Division	I	II	III
Degree	150°	120°	X°

- (a) If the divisions in the above table are represented by angle sectors of a Pie-Chart. Find the value of **X**. (02 Marks)

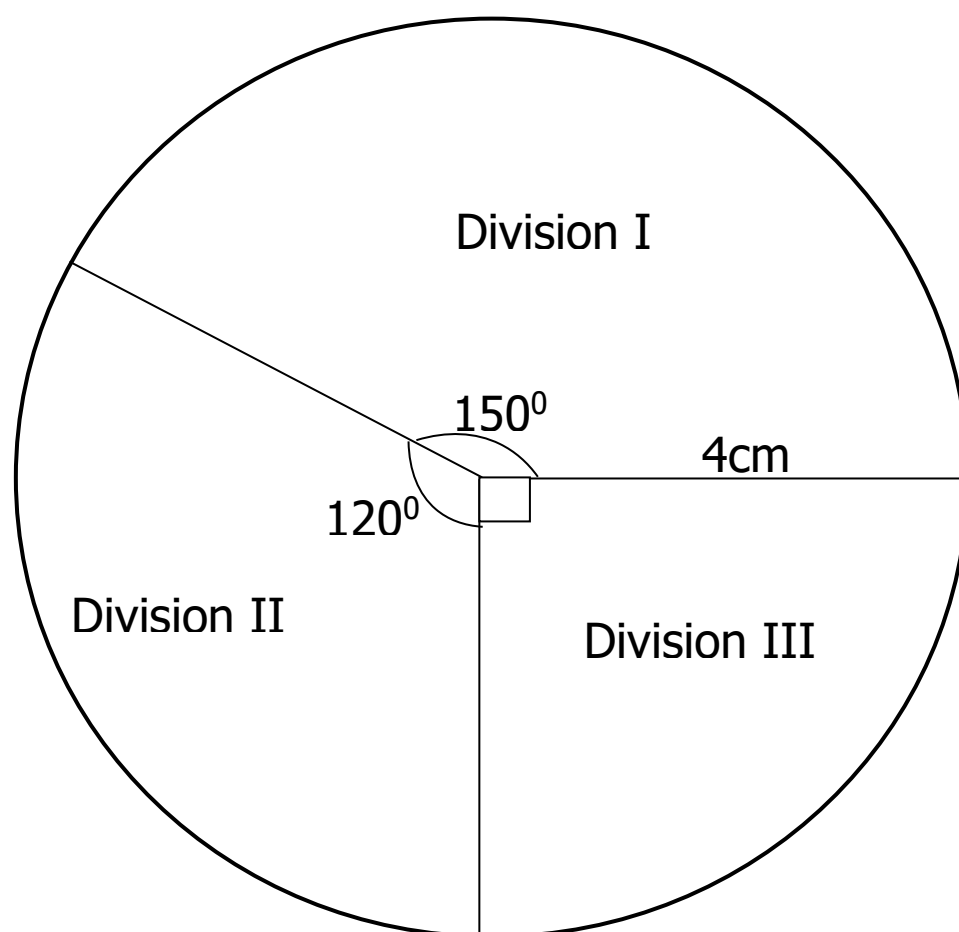
$$150^{\circ} + 120^{\circ} + x^{\circ} = 360^{\circ}$$

$$270 + x = 360$$

$$270 - 270 + x = 360 - 270$$

$$\underline{x = 90}$$

- (b) Draw an accurate Pie-Chart to show the above information in the table using 4cm as the radius. (03 Marks)



31. In a village meeting, the ratio of men to women to children was 3:7:5 respectively. $\frac{1}{4}$ of the children were girls and 50% of the men were married. If there were 15 more boys than girls in the meeting;
- (a) How many women were in the meeting? (04 Marks)

<u>Total ratio</u>	<u>Fraction of more boys than girls</u>	<u>Number of women</u>
$= 3 + 7 + 5$ $= \underline{15\text{parts}}$	$= \frac{3}{12} - \frac{1}{12}$ $= \frac{2}{12}$ $= \frac{1}{6}$	$= \frac{7}{15} \times \frac{18}{1}$ $= 7 \times 18$ $= \underline{126 \text{ women}}$
<u>Fraction of girls</u> $\frac{1}{4}$ of $\frac{5}{15}$ $\frac{1}{4} \times \frac{5}{15}$ $= \frac{1}{12}$	<u>Number of children in the meeting</u> $= 15 \div \frac{1}{6}$ $= 15 \times \frac{6}{1}$ $= \underline{90\text{children}}$	
<u>Fraction of boys</u> $= \frac{1}{15} - \frac{1}{12}$ $= \frac{1}{3} - \frac{1}{12}$ $= \frac{4-1}{12}$ $= \frac{3}{12}$	<u>Number of people who attended the meeting</u> $= 90 \div \frac{5}{15}$ $= 90 \times \frac{15}{5}$ $= \underline{270 \text{ people}}$	

- (b) Express the number of married men as a percentage of the total number of people in the meeting. (02 Marks)

<u>Number of men</u>	<u>Number of married men</u>	<u>Percentage of married men</u>
$= \frac{3}{15} \times \frac{18}{1}$ $= 3 \times 18$ $= 54\text{men}$	$= \frac{1}{100} \times \frac{27}{1}$ $= 1 \times 27$ $= 27 \text{ men}$	$= \frac{1}{27} \times \frac{10}{100}\%$ $= 1 \times 10\%$ $= 10\%$

32. Tap A fills a tank in 3 minutes and Tap B fills the same tank in t minutes.

- (a) If the two taps fill $\frac{7}{12}$ of the tank in one minute. Find the value of t . (03 Marks)

In one minute

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

Tank B fills $\frac{1}{t}$ of the tank

Both taps fill

$$\frac{1}{3} + \frac{1}{t}$$

There fore,

$$\frac{1}{3} + \frac{1}{t} = \frac{7}{12}$$

$$\frac{1}{t} = \frac{7}{12} - \frac{1}{3}$$

$$\frac{1}{t} = \frac{7-4}{12}$$

$$\frac{1}{t} = \frac{3}{12}$$

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

$$1 \times t = 1 \times 4$$

$$\underline{t = 4}$$

- (b) If 280 litres of water is filled by the two taps in one minute. Find the capacity of the tank. (03 Marks)

Let the capacity be y

$$\frac{7}{12} \times y = 280 \text{ litres}$$

$$\frac{7y}{12} = 280$$

$$\frac{7y}{12} \times \frac{12}{1} = 280 \times 12$$

$$\frac{7y}{1} = \frac{480}{1}$$

$$\underline{y = 480 \text{ litres}}$$

METHOD II

$$= 280 \div \frac{7}{12}$$

$$= \frac{40}{280} \times \frac{12}{7}$$

$$= 40 \times 12$$

$$\underline{= 480 \text{ litres}}$$

