SECTION A: 40 MARKS

Attempt **all** *questions in this section*

Questions **1** to **20** carry **two** marks each

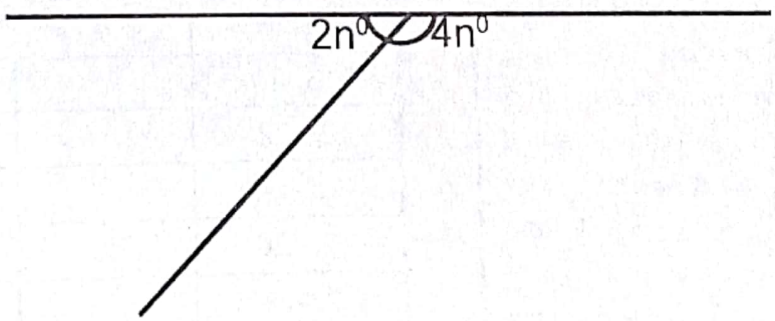
1. **Work out:** 30 ÷ 10 =

2. Given that set **R** = {composite numbers between 0 and 10 }. Find n (R)

3. Express "Sixty thousand, seven" in numerals.

4. **Simplify:** $2a^2 + 3b^2 + -4b^2 + a^2$

5. In the figure below, find the value of **n** in degrees.



6. **Simplify:** $^{-}9 - ^{-}6$

7. The probability of picking a blue pencil from a bag containing blue and black pencils is $\frac{4}{7}$. The bag contains 28 pencils. Find the number of blue pencils in the bag.

8. Express 25cm as a fraction of 2 metres.

9. How many lines of folding symmetry has an equilateral triangle?

10. Given that set **P** = {P.7 candidates with five heads each};
Find the number of subsets that can be obtained from set **P**.

11. **Work out:**

weeks	days
7	3
-2	5

12. Find the Lowest Common Factor (**LCF**) of 12 and 16.

13. **Add:** 2 + 3 = (finite 5)

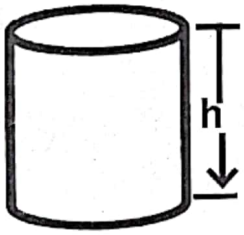
14. **Solve for r**: 3 - 2 (r - 4) = 3

15. With the help of a ruler, a pencil and a pair of compasses only, construct an angle of 45^0 in the space provided below.

16. The digits **4, 0** and **5** are used to form 3 -digit numerals. Work out the difference between the largest and smallest numerals formed.

17. **Work out:** $\frac{3}{8} + \frac{2}{3}$

18. The **base area** of a cylinder is **154cm²** Work out its radius. Take $\left(\pi = \frac{22}{7}\right)$



19. Express **2,307** in scientific notation.

20. A school bursar withdrew 55 notes of five thousand shillings numbered consecutively from AF057485. Find the registration number of the last note.

SECTION B: 60 MARKS

Attempt **all** *questions in this section.*

Marks for **each part** *of the question are* **indicated** *in the brackets.*

21. Amina went shopping and bought the following items;

2kg of salt at sh. 1,500 each kilogramme.

3 litres of cooking oil at sh. 6,000 per litre.

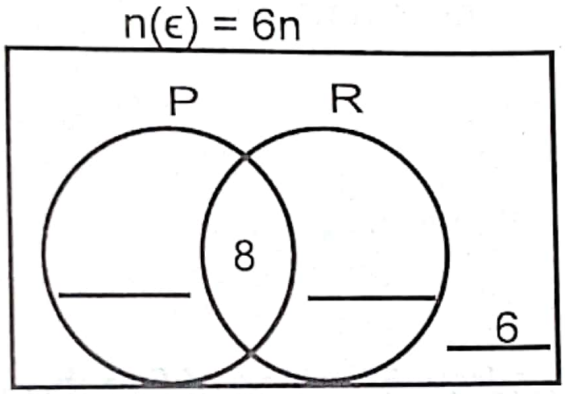
1 kg of sugar at sh. 4,000 per $\frac{1}{2}$kg.

2 bars of soap at sh. 10,000.

(a) How much did she pay for all the items? *(04 marks)*

(b) Calculate Amina's **change** if she went with a fifty thousand shilling note. *(02 marks)*

22. In a class of 6n pupils, 22 enjoy posho (**P**) only, 8 enjoy both posho and rice, 2n + 8 enjoy rice (**R**) while 6 pupils do not enjoy any of the foodstuffs.



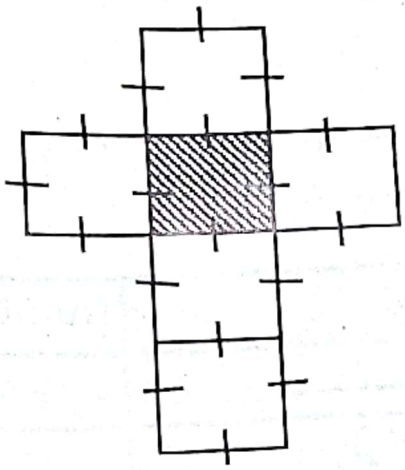
(a) Find the value of **n**. *(03 marks)*

(b) How many pupils do not enjoy **posho**? *(02 marks)*

23. (a) **Work out**: $1011_{two} - 111_{two}$ *(02 marks)*

(b) Given that; $\mathbf{f4}_{\text{nine}} = \mathbf{42}_{\text{five}}$. Find the value of **f**. (03 marks)

24. The figure below shows a net of a solid figure.



(a) If the area of the shaded face is **81dm**^{2}. Calculate the **length** of each side. (02 mark

(b) Find the **total surface** area of the solid formed. (02 mark

(c) Calculate the **volume** of the solid. (02 m

25. Using a ruler, a pencil and a pair of compasses only, construct a regular hexagon of sides 3.6cm. *(04 marks)*

26. **The graph below shows the number of watches sold in four days in a week by a trader.**

a) Complete the table. *(03marks)*

Day	Pictures	Number of watches
Monday	_____	45
Tuesday		_____
Wednesday		54
Thursday		_____

b) Work out the total number of watches sold in the **four** days. *(02 marks)*

27. Three people; Kato, Odeke and Tumushabe were told to report to police at intervals of 25 minutes, 30 minutes and 40 minutes respectively. If they reported together for the second time at 5: 42 pm, at what time did they first report together at the same time? *(05 marks)*

. Acham deposited **sh. 800,000** in a commercial bank which offers an interest rate of 5% per annum.

a) Calculate the interest gained after a period of **18 months**. *(03 marks)*

b) How much **amount** would she have after the above period? *(02marks)*

29. In a school, **25%** of the pupils wear Blue sports wear, **50%** of them wear Red sports wear while the rest wear Yellow sports wear. Using a radius of **3.0cm**, **draw** an accurate circle graph to show the above information. *(05 marks)*

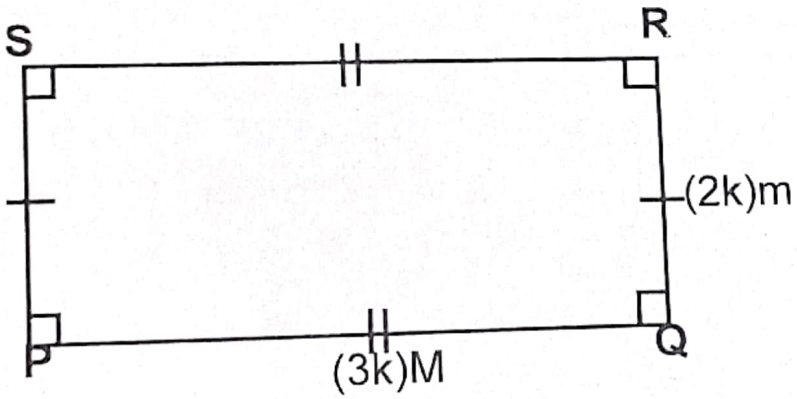
30. Anne, Belinda and Christine shared 65 mangoes. Anne got 3 times as much as Belinda and Christine got 5 mangoes more than Belinda. Find the number of mangoes each person got. *(05 marks)*

31. a) Peter slept for $8\frac{3}{4}$ hours and woke up at **5:35a.m**. At what time did he start sleeping?

(02 marks)

(b) A motorist covered a distance of **25** metres in only one second. Work out the distance he would cover in **one hour**. *(02 marks)*

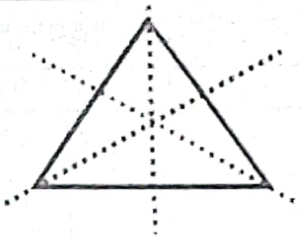
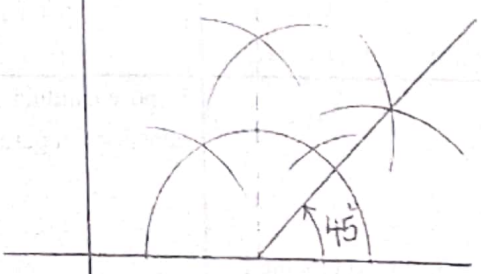
32. The **perimeter** of the rectangular garden below is **60M**.



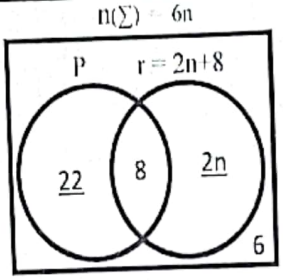
(a) Find the value of **k**. *(02 mark*

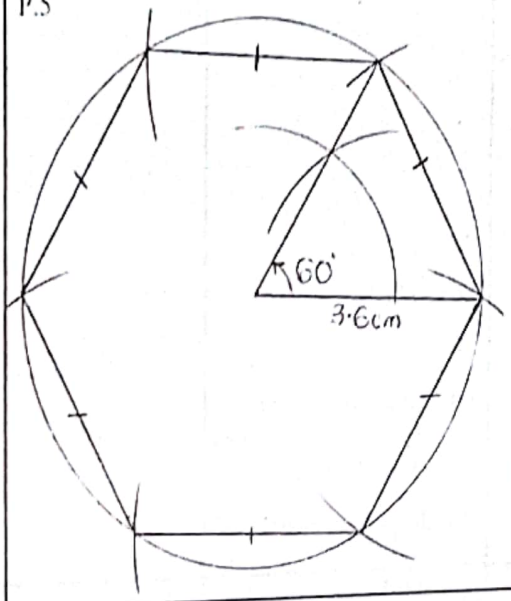
(b) Calculate the area of the garden. *(03 ma*

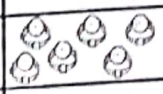
NO.	LEVEL	SOLUTION	AWARD	REASON	TECHNICAL ADVICE
1.	P.3	30 ÷ 10 = 3 Alternative: $\frac{30}{10} = 3$	B_2	For the correct answer.	Accept: 30 − 10 = 20 20 − 10 = 10 10 − 10 = 0 30 ÷ 10 = 3
2.	P.5	Set R = {4, 6, 8, 9} n(R) = 4	B_1 B_1	For set R. For n(R).	Make a review on types of numbers and apply them.
3.	P.5	60,000 + 7 60,007	B_1 B_1	For the interpretation. For 60,007.	Revisit writing in words and in figures as well.
4.	P.6	$2a^2 + 3b^2 - 4b^2 + a^2$ $2a^2 + a^2 + 3b^2 - 4b^2$ $3a^2 - b^2$	B_1 B_1	For collecting like terms. For $3a^2 - b^2$.	Make use of the class materials to apply the concept of like terms.
5.	P.5	$2n^0 + 4n^0 = 180^0$ $6n^0 = 180^0$ 300^0 $\frac{6n^0}{6} = \frac{180^0}{6}$ $\frac{n^0}{1^0} = \frac{30^0}{1^0}$ **n = 30**	M_1 A_1	For the correct method. For n = 30.	Make a review on complementary and supplementary angles.
6.	P.6	-9 - -6 -9 − (-6) -9 + 6 **-3**	M_1 A_1	For the correct method. For the correct answer.	Help candidates to work out related questions using a number line.
7.	P.6	$1 - \frac{4}{7}$ $\frac{7}{7} - \frac{4}{7} = \frac{7-4}{7}$ $= \frac{3}{7}$ 4 $\frac{3}{7} \times 28$ **= 12 blue pencils.**	B_1 B_1	For $\frac{3}{7}$. For the correct answer.	Revisit probability of the di days of the week, etc.
8.	P.6	1m = 100cm 2m = 2 x 100cm = 200cm 25cm 200cm 51 25 200 408 = $\frac{1}{8}$	M_1 A_1	For the correct method. For $\frac{1}{8}$.	Expose candidates to relat questions in percentages.

9.	P.5	 3 lines of folding symmetry.	B_2 B_1	For indicating the lines. For the number of lines of symmetry.	Make a review on the lines of folding symmetry for different shapes.
10.	P.6	Sep P = ϕ Number of subsets 2^n 2^0 = 1	B_1 B_1	For ϕ. For the correct answer.	Revisit listing of subsets and proper subsets. Accept: Set P { } Number of subsets { } One subset.
11.	P.4	wks days 7 3 -2 5 4 5 1wk = 7 days 7 + 3 = 10 10 - 5 (1wk) 5 (days)	M_1 A_1	For the correct method. For the correct answer.	Operate time, days and weeks, years and months, etc.
12.	P.4	F12 = {1, 2, 3, 4, 6, 12} F16 = {1, 2, 4, 8, 16} L.C.F = 1	B_1 B_1	For listing the factors. For L.C.F.	Help candidates on how to identify the factors of a number.
13.	P.6	2 + 3 = __ (finite 5) 5 + 5 = 1 r 0 (finite 5) = 0 (finite 5)	B_1 B_1	For the correct method. For the correct answer.	Accept if one has used a dial.
14.	P.7	3 = 2(r − 4) + 3 3 = 2r − 8 + 3 3 + 8 = 2r + 3 11 = 2r + 3 11 − 11 = 2r + 3 − 11 0 = 2r + 8 −2r = 8 $\frac{-2r}{-2} = \frac{8}{-2}$ r = −4	M_1 A_1	For collecting like terms. For r = −4.	Expose candidates to equations with different approaches.
15.	P.4	 	B_2	For the angle.	Revisit drawing and construction of angles.
16.	P.5	4, 0, 5 → 540 405 3 5 4 0 - 4 0 5 1 3 5	M_1 A_1	For the correct method. For 135.	Explain to candidates why you can not start with zero when forming the smallest number.

17.	P.5	$\frac{3}{8} + \frac{2}{3} = \frac{(3 \times 3) + (2 \times 8)}{24}$ $= \frac{9 + 16}{24}$ $= \frac{25}{24}$ $= 1\frac{1}{24}$	A_1	For the correct method For $1\frac{1}{24}$.	Accept if the candidate has used equivalent fractions
18.	P.6	Base area πr^2 $154cm^2 = \frac{22}{7} \times r^2$ $7 \times 154 = \frac{22r^2}{7} \times 7^1$ $7 \times \frac{154cm^2}{22} = \frac{22r^2}{22}$ $49cm^2 = r^2$ $\sqrt{r^2} = \sqrt{49cm^2}$ $r = \sqrt{7^2 cm^2}$ radius = 7cm	M_1 A_1	For the correct method. For 7cm.	Make a review on finding volume and capacity of solid figures.
19.	P.7	$2307 \div 10 = 230.7$ $230.7 \div 10 = 23.07$ $23.07 \div 10 = 2.307$ 2.307×10^3	M_1 A_1	For the correct method. For the correct answer.	Revisit related questions involving a decimal point
20.	P.6	Last number = 1st number + (number of notes) – 1 AF 057485 + 54 AF 057539	M_1 A_1	For the correct method. For the correct answer.	Make a review on finding the last and first consecutive numbers in a bundle of money.
		SECTION B			
21.a)	P.5	**Salt** Sh. 1,500 x 2 Sh. 3,000 **Sugar** Sh. 4,000 ÷ ½ Sh. 4,000 x ½ **= Sh. 2,000** **Bill** Sh. 3,000 Sh. 18,000 Sh. 2,000 + Sh. 10,000 Sh. 33,000 **Cooking oil** Sh. 6,000 x 3 **= sh. 18,000**	B_1 B_1 B_1 B_1	For each correct product. For sh 33,000.	Emphasise the use of units.

(b)		4 Sh 50,000 - Sh 33,000 Sh 17,000	M_1 A_1	For the correct method. For the correct answer.	
22.a)	P.7	$n(\sum) = 6n$  	B_1 B_1 B_1	For 22. For 2n. For 6.	Expose candidates to a variety of related questions with different approaches.
(b)		$2n + 8 + 22 + 6 = 6n$ $2n + 36 = 6n$ $2n - 2n + 36 = 6n - 2n$ $\frac{36}{4} = \frac{4n}{4}$ $9 = n$ $\therefore n = 9$ $2n + 6$ $(2 \times 9) + 6$ $18 + 6$ **24 pupils.**	B_1 B_1	For n = 9. For 24 pupils.	
23.a)	P.6	0 2 $+\ 0\ 1\ 1_{two}$ $-\ 1\ 1\ 1_{two}$ $1\ 0\ 0_{two}$	B_2	For 100_{two}.	Make a review on operation of bases and apply the application part of it.
(b)		f 4 = 4 2 f nines 4 ones = 4 fives 2 ones $(f \times 9) + (4 \times 1) = (4 \times 5) + (2 \times 1)$ $9f + 4 = 20 + 2$ $9f + 4 = 22$ $9f + 4 - 4 = 22 - 4$ $9f = 18$ $\frac{9f}{9} = \frac{18}{9}$ **f = 2**	B_1 M_1 A_1	For expansion. For the correct method. For the correct answer.	
24.a)	P.7	$L \times L$ = area $L^2 = 81dc^2$ $\sqrt{L^2} = \sqrt{81dc^2}$ $L = 9$ 3 | 81 3 | 27 3 | 9 3 | 3 1	M_1	For the correct method.	Revisit the drawing of all solid nets.

		L = $\sqrt{3^2 \times 3^2 dm^2}$ **Length = 9dm**	A_1	For the correct answer.	
(b)		T.S.A = $6(5^2)$ $6\ (9dm \times 9dm)$ $6\ (81dm^2)$ $6 \times 81dm^2$ **$= 486dm^2$**	M_1 A_1	For the correct method. For the correct answer.	
(c)		Volume = base area x length $(L \times L) \times L$ $(9dm \times 9dm) \times 9dm$ $81dm^2 \times 9dm$ **$= 729dm^3$**	M_1 A_1	For the correct method. For the correct answer.	
25.a)	P.5		L_1 C_1 C_1 J_1	For 3.6cm. For the circle. For arcs. For joining.	Emphasise neatness and accuracy.
26.a)	P.7	Scale = 6 6 picto rep 54 1 picto rep $\frac{54}{6}$ 1 picto rep 9 watches 45 ÷ 9 = 5 3 x 9 = 27 4 x 9 = 36	B_1 B_1 B_1	For 9. For 27. For 36.	Award B_0 minus the working.
(b)		2 4 2 2 7 5 4 3 6	M_1 A_1	For the correct method. For the correct answer.	

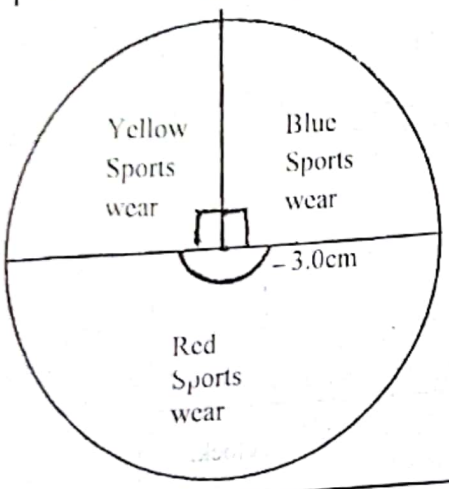
Day	Pictures	No. of watches
Monday		45
Tues		27
Wed		54
Thur		36

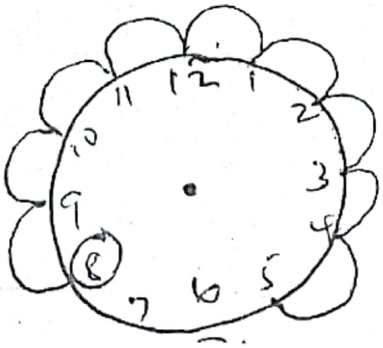
<table>
<tr>
<td>27.a)</td>
<td>P.7</td>
<td>
<table>
<tr><td>2</td><td>25min</td><td>30min</td><td>40min</td></tr>
<tr><td>2</td><td>25</td><td>15</td><td>20</td></tr>
<tr><td>2</td><td>25</td><td>15</td><td>10</td></tr>
<tr><td>3</td><td>25</td><td>15</td><td>5</td></tr>
<tr><td>5</td><td>25</td><td>5</td><td>5</td></tr>
<tr><td>5</td><td>5</td><td>1</td><td>1</td></tr>
<tr><td></td><td>1</td><td>1</td><td>1</td></tr>
</table>
(2 x 2) x (2 x 3) x (5 x 5)
(4 x 6) x 25
24 x 25
= 600 minutes
60 minutes = 1 hour
1 minute = $\frac{1}{60}$ hour
600min = $\left(\frac{1}{60} \times 600\right)$ hour
= 10 hours.

FIRST TIME
5 : 45pm
+ 12: 00
17 : 45hour

17 : 45hour
- 10 : 00
7 : 45am
</td>
<td>MM_1
A_1
B_1
B_1
B_1</td>
<td>For prime factorization.
For 600 minutes.
For 10 hours.
For the use of a clock.
For the correct answer.</td>
<td>- Accept any candidate who has used a number line.</td>
</tr>
<tr>
<td>28.a)</td>
<td>P.6</td>
<td>
SI = P x R x T
Sh $800{,}000 \times \frac{5}{100} \times \frac{8}{12}$
= Sh 2000 x 30
= Sh 600,000
</td>
<td>M_1
M_1
A_1</td>
<td>For substitution.
For the correct method.
For the correct answer.</td>
<td rowspan="2">- Make a review on finding the principal, rates and time.</td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td>
Amount = P + SI
Sh 800,000
+ Sh 60,000
Sh 860,000
</td>
<td>M_1
A_1</td>
<td>For the correct method.
For the correct answer.</td>
</tr>
<tr>
<td>29.a)</td>
<td>P.6</td>
<td>
Blue sports wear:
$\frac{25}{100} \times 360^0$
= $(5 \times 18)^0$
= 90^0

Red sports wear:
$\frac{50}{100} \times 360$
5×36^0
</td>
<td>B_1
B_1</td>
<td>For 90^0.
For 180^0.</td>
<td>- Emphasise accuracy and neatness.</td>
</tr>
</table>

		Yellow sports wear: 100% - (25% + 50%) 100% - 75% 25% $\frac{5}{\cancel{25}} \times \frac{18}{\cancel{360}^{0}}$ $\cancel{10}$ 2 1 $= 90^{0}$	B_1	For 90^{0}.	
(b)			B_1 B_1	For representation. For the pie chart.	
30.a)	P.7	Let Belinda's share be n. **Anne** | **Belinda** | **Christine** | **Total** 3n | n | 5 + n | 65 3n + n + 5 + n = 65 5n + 5 = 65 5n + 5 – 5 = 65 – 5 12 $\frac{5n}{5} = \frac{60}{5}$ n = 12 Anne: 3 x n; 3 x 12 = 36 mangoes Christine: 5 + n; 5 + 12 = 17 mangoes **Belinda = 12 mangoes.**	B_1 B_1 B_1 B_1	For the equation. For 12. For 36 mangoes. For 17 mangoes.	Expose candidates for solving word statements involving algebra.
31.a)	P.7	8 $\frac{3}{4}$ hours 15 3 x 60 1 = 45 min 45 + 35 = 80min 80 – 60(1h) = 20(min) 9 hours 20 min	B_1	For 9 hours 20 minutes.	- Accept if the candidate has used a number line.

		 **8:20 am**	B_1	For 8:20 pm.	
(b)		In 1 second ---- 25 metres 1 hour (3600 seconds) -- (3600 x 25)m (3600 x 25) metres **= 90,000 metres**	M_1 A_1	For the correct method. For the correct answer.	
32.a)	P.7	$2(L + W)$ = perimeter $2(3k + 2k) = 60m$ $6k + 4k = 60m$ $10k = 60m$ $\frac{10k}{10} = \frac{60m}{10}$ $k = 6m$	M_1 A_1	For the correct method. For the correct answer.	- Make a review on area and perimeter of plane shapes.
(b)		Length | width (3k)m | (2k)m (3 x 6)m | 2 x 6m 18m | 12m Area = L x W = 18m x 12m **= 216m^2.**	B_1 B_1 B_1	For 18m. For 12m. For 216m^2.	