

THE SIPRO PRE-PLE SET II 2023

MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

Index No.	Random No.	Personal No.

Candidate's Name: _____

Candidate's Signature: _____

School Random No: _____

District: _____

READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

1. This paper has two sections: A and B.
2. Section A has 20 questions (40 Marks).
3. Section B has 12 questions (60 Marks).
4. Attempt all questions in both sections. All answers to both sections A and B must be written in the spaces provided.
5. All answers must be written in blue or black ball point pens or *ink*. Only diagrams and graph work must be done in *pencil*.
6. Unnecessary *alteration* of work will lead to loss of marks.
7. Any *handwriting* that cannot be easily read may lead to loss of marks.
8. Do not fill anything in the boxes indicated.

"FOR EXAMINER'S USE ONLY"

For Examiner's Use Only;

Qn No.	MARKS	INITIALS
1-5		
6-10		
11-15		
16-20		
21-22		
23-24		
25-26		
27-28		
29-30		
31-32		
Total		

Please turn over



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SECTION A: 40 MARKS

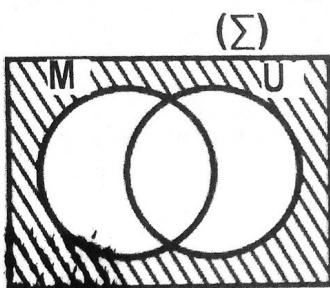
Attempt all questions in this section

Questions 1 to 20 carry two marks each

1. A class monitor was given two notes of sh. 5000, how much money has the class monitor?

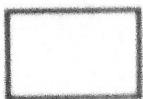
2. Work out;
$$\begin{array}{r} 1011 \\ + 111 \\ \hline \end{array}$$
 two

3. Describe the shaded region.



4. Simplify; $^4 - ^9 - ^2$

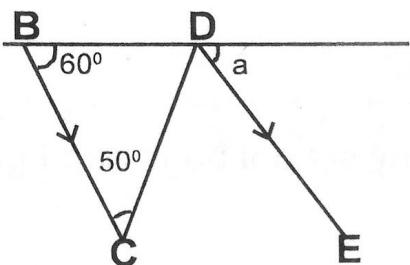
5. Write in **Figures**; "Thirteen thousand, nine hundred four and twenty eight hundredths".



6. A school has three streams, A with 16 candidates, B with 24 candidates and C with 12 candidates. The head teacher plans to buy pens for the candidates. What **least** number of pens can he buy for the candidates?

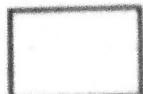
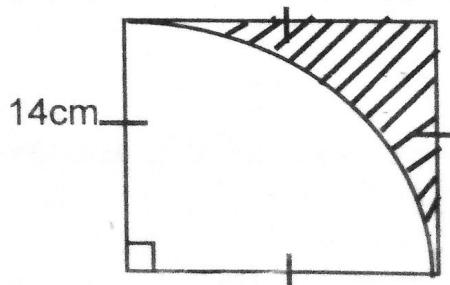
7. Solve the equation; $\frac{2w}{3} + 4 = 12$

8. In the diagram, line BC is parallel to line DE. Find the size of angle a.



9. If represents 27 stools; Draw pictos for 108 stools.

10. A quadrant was cut out from the square manila piece of side 14cm. Find the **area** of the wasted manila.



11. A tailor had **0.2m** piece of cloth. He cut it into **0.02m** pieces. How many **pieces** did he make from the cloth?
12. A test started at **2:30pm**. A candidate reached **15 minutes** late. If the test lasted for **90 minutes**, How long did the candidate take writing the test?
13. Seven school bags cost **sh.420,000**. How many school bags can I get with **sh.180,000**?
14. Moses planted trees in a circular garden of diameter **28 metres**. Work out the **distance** round the circular garden. (use π as $3 \frac{1}{7}$)



15. Complete the **sequence** below;

2, 4, 8, 16,

1

16. Expand ~~96,452~~ using exponents.

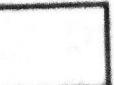
17. Plot -3 , $+2$, and 0 on the number line below.



18. Find the percentage discount of an item which costed forty-five thousand shillings and a discount of one thousand five hundred shillings.

19. List the proper subsets of set R= {r,s,t}

20. Work out the average of $x + 2$, $2x - 4$, 6 and $3x + 1$.



SECTION B: 60 MARKS

Attempt all questions in this section

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

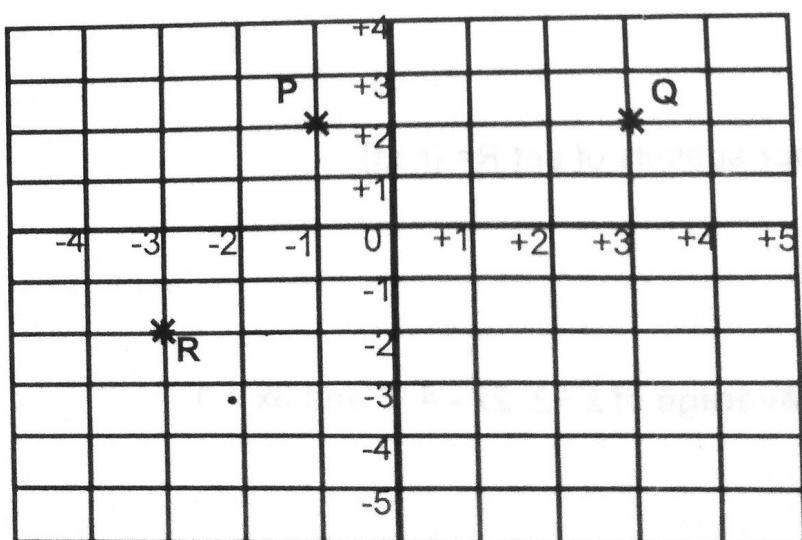
21. Using a ruler , a pencil and a pair of compasses, draw line $AC = 4\text{cm}$. Bisect AC so that the perpendicular bisector meets AC at O . On the bisector line $OB = 2\text{cm}$ and $OD = 6\text{cm}$, Join BC , CD , DA and AB to form a quadrilateral $ABCD$.

(04 Marks)

- b) Name the quadrilateral $ABCD$ formed.

(01 Mark)

22. Write the co-ordinate points P , Q and R .



- i) P _____
ii) Q _____
iii) R _____

(03 Marks)

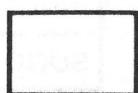


b) Plot the co-ordinates **S(+3, -2)**

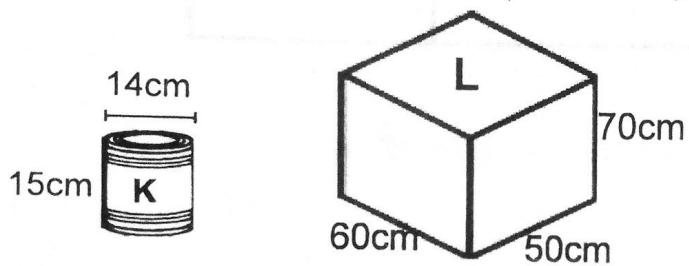
(01 Marks)

c) Join the points to form a **figure** and find its **area**.

(02 Marks)



23. Tin **K** is packed in box **L** at a milk factory.



a) How many tins will fill the **first two layers**?

(02 Marks)

b) Calculate the **percentage** loss the factory made if tins on the last layer got spoilt yet each tin costed **sh.4000**.



(02 Marks)

24. A mother sent her son to a shop with the list of items to buy;
- 2kg of sugar at sh.5500 per kg
- 250 gm of salt at sh. 2000 per kg.
- A bar of soap at sh 6000
- $1\frac{1}{2}$ kg of rice at sh.9000

a) Prepare a shopping bill table for the list above.

Item	Qty	Unit cost	Amount
sugar			
salt			
soap			
rice			
Total			

(05 Marks)

- b) If the boy went with sh.20,000 and it was not enough to buy all the items, how much **more** money was needed?

(01 Mark)

25. a) Round off 67,864 to the nearest **thousands**.

(02 Marks)

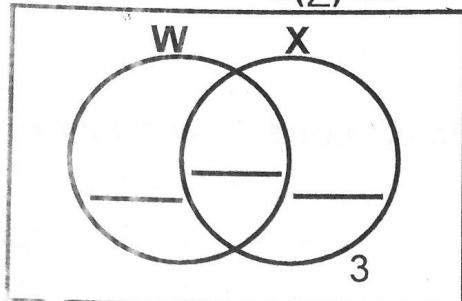
b) Malinga is XL years old now. In which **year** was he born?

(02 Marks)

26.a) Complete the Venn diagram with the information given:

$$(W - X) = 12, (X - W) = 8, (W \cup X)^1 = 3, n(\Sigma) = 30$$

$$n(\Sigma) 30$$



(03 Marks)

b) What is the **probability** of picking a member of **X** complement?

(02 Marks)

27.a) Solve the **inequality**: $3(2 - X) \leq X + 14$

(02 Marks)

b) Give the **solution set** for **X** above.

(02 Marks)



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28. Amon divided his land; $\frac{2}{5}$ to his wife, $\frac{1}{3}$ less the remainder to the son

and the rest to the daughters.

a) What fraction did he give to his daughters?

(03 Marks)

b) If he gave $\frac{2}{5}$ acres of land to his sons, how many acres did he have altogether?

(02 Marks)

29. A woman started her journey at 8:30 am from Kampala to Kabale. As she reached Masaka, she rested for 45 minutes after covering 180km at 90km/h. She continued to Kabale for 4 hours at 70km/h.

a) Find the woman's average speed for the whole journey.

(04 Marks)

b) At what time did she reach Kabale?

(01 Mark)



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30. The exterior angle of a regular polygon is 1 its interior angle.

3

a) How many sides has the polygon?

(03 Marks)

b) Find the number of **right angles** in the polygon.

(02 Marks)

31.a) Work out the **square root** of 0.0196.

(03 Marks)

b) Find the number that was prime factorized to give $\{2_1, 2_2, 3_1, 5_1\}$.

(02 Marks)

32. a) Express the product of 364 and 5 in scientific notation.

(03 Marks)

b) Given that; $3^n \div 27 = 81$. Find the value of n.

(03 Marks)



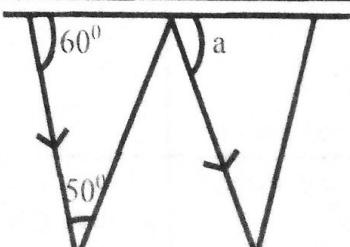
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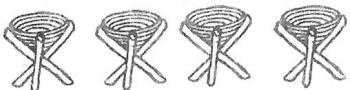
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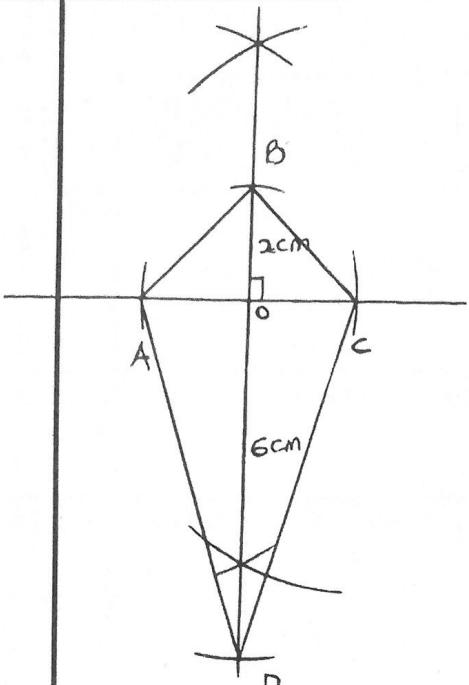
THE SIPRO PRE-PLE SET II MATHEMATICS MARKING GUIDE – 2023

NO.	LEVEL	SOLUTION	AWARD	REASON	TECHNICAL ADVICE
1.	P.4	$ \begin{array}{r} \text{Sh. 5000} \\ + \text{Sh. 5000} \\ \hline \text{Sh. 10,000} \end{array} $	M ₁ A ₁	For correct working. For the correct answer.	Emphasise units.
2.	P.7	$ \begin{array}{r} 1011_{\text{two}} \quad 2 : 2 \quad 1 \text{ r } 0 \\ + \quad 111_{\text{two}} \quad 3 : 2 \quad 1 \text{ r } 1 \\ \hline 10010_{\text{two}} \quad 2 : 2 \quad 1 \text{ r } 0 \end{array} $	M ₁ A ₁	For correct working. For the correct answer.	Add in different bases.
3.	P.6	(MUU) complement.	B ₂	For the correct answer.	Describe different regions.
4.	P.6	$ \begin{array}{r} -4 - 9 = -2 \\ -4 - (-9) = -(-2) \\ -4 - 9 = -2 \\ -13 + 2 \\ -11 \end{array} $	M ₁ A ₁	For correct working. For the correct answer.	Follow proper rules of integers.
5.	P.6	$ \begin{array}{r} 13,000.00 \\ + 904.28 \\ \hline 13,904.28 \end{array} $	M ₁ A ₁	For correct working. For correct answer.	Review value and place value of decimals.
6.	P.6	$ \begin{array}{c} \begin{array}{ c c c c } \hline 2 & 16 & 24 & 12 \\ \hline 2 & 8 & 12 & 6 \\ \hline 2 & 4 & 6 & 3 \\ \hline 2 & 2 & 3 & 3 \\ \hline 3 & 1 & 3 & 3 \\ \hline 1 & 1 & 1 & \\ \hline \end{array} \\ (2 \times 2) \times (2 \times 2) \times 3 \\ 4 \times 4 \times 3 = 48 \\ \text{He will buy 48 pens.} \end{array} $	M ₁ A ₁	For correct working. For correct answer.	Teach application of LCM.
7.	P.5	$ \begin{array}{r} 2w + 4 = 12 \\ 3 \\ 2w + 4 - 4 = 12 - 4 \\ 3 \\ 3 \times \frac{2w}{3} = 8 \times \frac{4}{3} \\ 2w = 24 \\ \frac{2w}{2} = \frac{24}{2} \\ w = 12 \end{array} $	M ₁ A ₁	For the complete collection of like terms. For the correct answer.	Review equations and inequalities.
8.	P.5	 $ \begin{array}{l} a + 50^\circ = 60^\circ + 50^\circ \\ a + 50^\circ - 50^\circ = 110^\circ - 50^\circ \\ a = 60^\circ \end{array} $	M ₁ A ₁	For the correct equation. For the correct answer.	Review angles on parallel lines.

9.	P.4	$\begin{array}{r} 108 : 3 \quad 36 : 3 \quad 12 \\ 27 : 3 \quad 9 : 3 \quad 3 \\ \hline = 4 \end{array}$ 	B ₁	For division.	Emphasise the concept of division.								
10.	P.7	<p>Area of the quadrant</p> $\begin{array}{r} 11 \quad 2 \quad 7 \\ \frac{1}{4} \pi r^2 = \frac{1}{4} \times \frac{22}{7} \times 14\text{cm} \times 14\text{cm} \\ 2 \quad 1 \\ 1 \\ 11 \quad 2^1 \\ 1 \times \frac{22}{7} \times 14\text{cm} \times 14\text{cm} \\ 4 \quad 7 \\ 2 \quad 1 \\ 77 \times 2\text{cm}^2 \\ = 154\text{ cm}^2 \end{array}$ <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Wasted area:</td> <td style="width: 50%; border-left: 1px solid black; padding-left: 10px;">Square:</td> </tr> <tr> <td>196 cm²</td> <td>s × s</td> </tr> <tr> <td>- 154 cm²</td> <td>14cm × 14cm</td> </tr> <tr> <td><u>42 cm²</u></td> <td>196 cm².</td> </tr> </table>	Wasted area:	Square:	196 cm ²	s × s	- 154 cm ²	14cm × 14cm	<u>42 cm²</u>	196 cm ² .	B ₁	For 154 cm ² . For the difference.	Teach parts of a circle.
Wasted area:	Square:												
196 cm ²	s × s												
- 154 cm ²	14cm × 14cm												
<u>42 cm²</u>	196 cm ² .												
11.	P.6	$\begin{array}{r} 0.2 \times 100 \\ 0.02 \times 100 \\ \hline 20 \quad 10 \\ 2 \end{array}$ <p>The tailor will make 10 pieces.</p>	M ₁	For the correct working.	Make a review on operation of decimals.								
12.	P.5	$\begin{array}{r} 90 \text{ min} \\ - 15 \text{ min} \\ \hline 75 \text{ min} \end{array}$ <p>Candidate took 75 min.</p>	M ₁	For the correct working.	Review subtraction of time.								
13.	P.6	<p>7 bags cost sh. 420,000</p> <p>1 bag costs sh. <u>420,000</u></p> $\begin{array}{r} 7 \\ = \text{sh. } 60,000 \end{array}$ <p><u>3</u> Sh. <u>480,000</u> Sh. <u>60,000</u> = 3 bags</p>	M ₁	For the correct method.	Expose learners to related questions and award accordingly.								
14.	P.6	$\begin{array}{r} C = \pi D \\ C = \frac{4}{7} \times 28\text{m} \\ C = 88\text{ m} \end{array}$	M ₁	For the correct method.	Make a review on area and perimeter on parts of a circle.								
			A ₁	For 88m.									

15.		<p>2, 4, 8, 16, 32, 64</p>	B ₁ B ₁	For the correct pattern. For the correct answer.	Encourage candidates to identify the patterns.										
16.	P.6	<p>96,452</p> <table border="1"> <tr> <td>10^4</td><td>10^3</td><td>10^2</td><td>10^1</td><td>10^0</td></tr> <tr> <td>9</td><td>6</td><td>4</td><td>5</td><td>2</td></tr> </table> $(9 \times 10^4) + (6 \times 10^3) + (4 \times 10^2) + (5 \times 10^1) + (2 \times 10^0)$	10^4	10^3	10^2	10^1	10^0	9	6	4	5	2			Make a review on expansion of place values and values.
10^4	10^3	10^2	10^1	10^0											
9	6	4	5	2											
17.	P.7		B ₁ B ₁	For correct plotting of -3. For correct '2'.	Accept if the candidate has used the ticks and circles.										
18.	P.7	<p>Percentage discount: $\frac{\text{Sh. } 1500}{\text{Sh. } 4500} \times 100\%$ $\frac{1500}{4500}$ $33\frac{1}{3}\%$</p>	M ₁	For the correct working.	Review business language.										
19.	P.6	<p>R : {r, s, t} $\{\cancel{r}\}, \{r\}, \{s\}, \{t\}, \{r, s\}$ $\{r, t\}, \{s, t\}$</p>	B ₂	For correct answer minus the mother set.	Teach proper subsets.										
20.	P.7	<p>Sum No.</p> $\frac{(x+2)+(2x-4)+6+3x+1}{4}$ $\frac{(x+2x+3x)+(2+6+1)-4}{4}$ $\frac{6x+(9-4)}{4}$ $\frac{6x+5}{4}$ $\frac{6x+5}{4}$ $\frac{3x+11}{2}$ $\frac{11x+11}{4}$	M ₁	For correct working.	Help the learner to know the meaning of average.										
			A ₁	For the correct answer.											

SECTION B

21.a)		L ₁	For AC = 4cm.	- Make a review on finding area of all quadrilaterals.
		L ₁	For OB.	
		L ₁	For OD.	
		L ₁	For joining.	
(b)	A kite.	B ₁		
22.a)	P.7 R (-3, -2) P (-1, 2) Q (3, 2)	B ₁ B ₁	For the correct points written. For proper plotting.	- Help learners in plotting and reading points on the grid.
(b)	Area $\frac{1}{2}b(a+b)$ $\frac{1}{2} \times 4(4+6)$ $\frac{1}{2} \times 2(10)$ $= 20$ sq units.	B ₁	For the correct area.	
23.a)	No. of layers $\frac{\text{height}}{\text{height}}$ $\frac{70 \text{ cm}}{14 \text{ cm}} = 5$ layers Tins on 15 layer $60 \times 50 = 4 \times 3$ $14 \quad 14$ 12 tins $12 \times 2 = 24$ tins on the two layers.	B ₁	For the correct working. For the correct answer.	- Assist the learners on how to work out questions with mixed up concepts.
(b)	Total tins $12 \times 4 = 48$ tins 1 st layer 12 tins 25 $\frac{12}{48} \times 100\% = 25\%$	B ₁ B ₁	For total tins. For the correct percentage.	

		OR 1 1 25 42 x sh. 4000 x 100% 48 x sh. 4000 1 = 25%. 24.a) P. 6																										
		<table border="1"> <thead> <tr> <th>Item</th> <th>Qty</th> <th>Unit cost</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>sugar</td> <td>2kg</td> <td>Sh. 5500</td> <td>Sh. 11,000</td> </tr> <tr> <td>rice</td> <td><u>1</u> kg 2</td> <td>Sh. 6000</td> <td>Sh. 9,000</td> </tr> <tr> <td>Salt</td> <td>250gm</td> <td>Sh. 2000</td> <td>Sh. 500</td> </tr> <tr> <td>soap</td> <td>1-bar</td> <td>Sh. 6000</td> <td>Sh. 6,000</td> </tr> <tr> <td></td> <td>Total</td> <td></td> <td>Sh. 26,500</td> </tr> </tbody> </table>	Item	Qty	Unit cost	Amount	sugar	2kg	Sh. 5500	Sh. 11,000	rice	<u>1</u> kg 2	Sh. 6000	Sh. 9,000	Salt	250gm	Sh. 2000	Sh. 500	soap	1-bar	Sh. 6000	Sh. 6,000		Total		Sh. 26,500	B ₁ B ₁ B ₁ B ₁ B ₁	For each correct answer. - Help the learners to know how to complete the bill table.
Item	Qty	Unit cost	Amount																									
sugar	2kg	Sh. 5500	Sh. 11,000																									
rice	<u>1</u> kg 2	Sh. 6000	Sh. 9,000																									
Salt	250gm	Sh. 2000	Sh. 500																									
soap	1-bar	Sh. 6000	Sh. 6,000																									
	Total		Sh. 26,500																									
(b)		$ \begin{array}{r} \text{Sh. } 2\ 6\ 5\ 0\ 0 \\ - \text{Sh. } 2\ 0\ 0\ 0\ 0 \\ \hline \text{Sh. } 6\ 5\ 0\ 0 \end{array} $	B ₁	For the correct answer.																								
25. a)		$ \begin{array}{r} \text{TH} \quad \text{THH} \quad \text{T} \quad \text{O} \\ 6 \quad 7 \quad 8 \quad 6 \quad 4 \\ 6\ 7\ 0\ 0\ 0 \\ + \ 1\ 0\ 0\ 0 \\ \hline 6\ 8\ 0\ 0\ 0 \end{array} $	M ₁ A ₁	For the correct method. For the correct answer.	Expose candidates to a variety of related questions.																							
(b)		$ \begin{array}{r} \text{XL} \quad 40 \text{ years} \\ 2\ 0\ 2\ 3 \\ - \ 4\ 0 \\ \hline 1\ 9\ 8\ 3 \end{array} $	M ₁ A ₁	For the correct method. For the correct answer.																								
26. a)	P.6	<p style="text-align: center;">$n(\Sigma) = 30$</p> $ \begin{aligned} x &= 30 - (12 + 8 + 3) \\ x &= 30 - 23 \\ x &= 7 \end{aligned} $	B ₁ B ₁ B ₁	For each correct entry.	Review interpretation of Venn diagrams.																							
(b)		$ \begin{aligned} \text{Prob} &= \frac{12 + 3}{30} \\ &= \frac{15}{30} \end{aligned} $	B ₁	For the correct answer.																								
27. a)		$ \begin{aligned} 3(2-x) &< x + 14 \\ 6 - 3x &< x + 14 \\ 6 - 3x - x &< x - x + 14 \\ 6 - 4x &< 14 \\ 6 - 6 - 4x &< 14 - 6 \end{aligned} $	M ₁	For complete correction of like terms.	- Expose candidates to a variety of inequalities with different approaches.																							

		$-4x < 8$ $\frac{-4x}{-4} > \frac{8}{-4}$ $x \geq -2$	M ₁ A ₁	For correct change of signs. For the correct answer.	
(b)		$X = \{2, -1, 0, 1, \dots\}$	B ₁	For the correct solution set.	2d)
28. a)		Remainder: $\frac{5-2}{5} = \frac{3}{5}$ Son: $\frac{3-1}{5-3} = \frac{2}{2} = 1$ Daughter: $\frac{3-4}{5-15} = \frac{-1}{-12} = \frac{1}{12}$	B ₁ B ₁ B ₁	For the fraction of the remainder. For the fraction of the son. For the fraction of the daughter.	- Practice application of fractions with different approaches.
(b)		$20 \text{ acres} : \frac{4}{15}$ $= 20 \times \frac{15}{4}$ $= 75 \text{ acres.}$	M ₁ A ₁	For the correct method used. For 75 acres.	
29. a)	P.7	AV. Speed $= \frac{\text{Total distance}}{\text{Total time taken}}$ $\frac{\text{Total distance}}{70 \text{ km/h}} = \frac{\text{Total time}}{\frac{480}{70} \text{ km/h}}$ $\frac{280 \text{ km}}{70 \text{ km/h}} = \frac{4h + 2 \text{ hours}}{\frac{480}{70} \text{ km/h}}$ $4h + 2 \text{ hours} = 6 \frac{3}{4} \text{ hours.}$	B ₁ B ₁ B ₁	For total distance. For total time. For $6 \frac{3}{4}$ hours.	Expose learners to questions with different approach.
		AV. Speed $= 460 \text{ km} : 6 \frac{3}{4}$ $= 460 : \frac{27}{4}$ $= \frac{460}{1} \times \frac{4}{27}$ $= \frac{1740}{27}$ $= 64.4 \text{ km/h.}$	M ₁ A ₁	For the division. For the correct answer.	

(b)	<table border="1"> <thead> <tr> <th>Hours</th><th>Min</th><th></th></tr> </thead> <tbody> <tr> <td>1</td><td>75</td><td>15 15 hours</td></tr> <tr> <td>8 30 am</td><td>- 60</td><td>- 12 00 hours</td></tr> <tr> <td>+ 6 45</td><td>15</td><td>3 : 15pm</td></tr> <tr> <td><u>15 15</u></td><td></td><td></td></tr> </tbody> </table>	Hours	Min		1	75	15 15 hours	8 30 am	- 60	- 12 00 hours	+ 6 45	15	3 : 15pm	<u>15 15</u>				
Hours	Min																	
1	75	15 15 hours																
8 30 am	- 60	- 12 00 hours																
+ 6 45	15	3 : 15pm																
<u>15 15</u>																		
30. a)	<p>Let the int \angle be y</p> $\text{Int} \angle + \text{ext} \angle = 180^\circ$ $y + \frac{1}{3}y = 180^\circ$ $\frac{4}{3}y = 180^\circ$ $y = \frac{180^\circ \times 3}{4}$ $y = 135^\circ$ <p>No. of sides = $\frac{360^\circ}{\text{ext} \angle}$</p> $\frac{360^\circ}{135^\circ} = 8$ $= 8 \text{ sides}$	B1	For substitution.	<ul style="list-style-type: none"> - Make a review on interior and exterior angles and apply words like more or less. <p>Accept: Total ratio $1 + 3 = 4$</p> <p>Ext angle $\frac{1}{4} \times 180^\circ = 45^\circ$</p> <p>No. of sides $\frac{360^\circ}{45^\circ} = 8 \text{ sides}$</p>														
(b)	<p>No. of right angles</p> $2n - 4$ $(2 \times 8) - 4$ $16 - 4$ <p>12 right angles.</p>	B1	For substitution.															
31. a)	$\sqrt{\frac{196}{10000}} = 0.0196$ <p>Prime factorisation of 196:</p> $\begin{array}{l l} 2 & 196 \\ 2 & 98 \\ 7 & 49 \\ 7 & 7 \\ \hline & 1 \end{array}$ <p>Prime factorisation of 10000:</p> $\begin{array}{l l} 2 & 1000 \\ 2 & 5000 \\ 2 & 2500 \\ 2 & 1250 \\ 5 & 625 \\ 5 & 125 \\ 5 & 25 \\ 5 & 5 \\ \hline & 1 \end{array}$	B1	For prime factorising 196.	- Encourage candidates to prime factorise completely.														
		M1	For the correct method.															

$$\sqrt{(2 \times 2) \times (7 \times 7)}$$

$$\begin{array}{r} \sqrt{(2 \times 2) \times (2 \times 2) \times (5 \times 5) \times (5 \times 5)} \\ \hline 2 \times 7 & 14 \\ 2 \times 2 \times 5 \times 5 & 100 \\ = 0.14 \end{array}$$

B₁ For the square root obtained 0.14.

(b) M₁ For the correct method used.

A₁ For the correct answer.

32. a)

P.7

$$\begin{array}{r} 365 \\ \times 5 \\ \hline 1825 \end{array}$$

$$\begin{array}{r} 1825 : 10 & 182.5 \\ 182.5 : 10 & 18.25 \\ 18.25 : 10 & 1.825 \\ 1.825 \times 10^3 & \end{array}$$

M₁ For 1825.

M₁ For the correct method.

A₁ For the correct answer.

- Make a review on operation of numbers.
- Make a review on prime factorization.

(b)

$$3^n : 27 \quad 81$$

$$\begin{array}{c|cc} 3 & 27 & || \\ 3 & 9 & \\ 3 & 3 & \\ \hline & 3 & \\ & 3^3 & \end{array} \quad \begin{array}{c|cc} 3 & 81 & \\ 3 & 27 & \\ 3 & 9 & \\ \hline & 3 & \\ & 3^4 & \end{array}$$

B₁ For prime factorizing 27.

B₁ For prime factorizing 81.

$$3^n : 27 \quad 81$$

$$3^n : 3^3 \quad 3^4$$

$$n - 3 = 4$$

$$n - 3 + 3 = 4 + 3$$

$$n = 7$$

B₁ For the value of n is 7.

B₁ For multiplying on both sides.

Accept:

$$3^n : 27 \quad 81$$

$$\underline{3^n} \times 27 \quad 81 \times 27$$

$$27$$

$$\begin{array}{c|cc} 3^n & 2187 & \\ \hline 3^n & 3^7 & \\ \hline n = 7 & 3 & 2187 \\ & 3 & 729 \\ & 3 & 243 \\ & 3 & 81 \\ & 3 & 27 \\ & 3 & 9 \\ & 3 & 3 \\ \hline & & 1 \end{array}$$

B₁ For prime factorizing 2187.

B₁ For the value of n is 7.