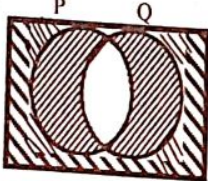


THE SIPRO MOCK MATHEMATICS MARKING GUIDE – 2023

NO.	LEVEL	SOLUTION	AWARD	REASON	TECHNICAL ADVICE
1.	P.2	$\frac{4}{0} - \frac{3}{0} = \frac{1}{0} - \frac{3}{0}$ $= \frac{2}{0}$	B ₂	For correct answer	Operate fractions with different denominators.
2.	P.3	$\begin{array}{r} 7,000 \\ + 433 \\ \hline 7,433 \end{array}$	M ₁ A ₁	For the method. For the answer.	Revisit writing figures in words.
3.	P.5	$3k + 2y - 4k + 5y + 7k$ $3k + 7k - 4k + 2y + 5y$ $10k - 4k + 7y$ $6k + 7y$	B ₁ B ₁	For collecting like terms For the answer.	Encourage candidates to apply the rules of integers in collecting like terms.
4.	P.4	$\begin{array}{r} 2 \overline{) 36} \\ \underline{2} \\ 16 \\ \underline{16} \\ 0 \end{array}$ $\begin{array}{r} 3 \overline{) 18} \\ \underline{3} \\ 18 \\ \underline{18} \\ 0 \end{array}$ $\begin{array}{r} 3 \overline{) 9} \\ \underline{3} \\ 9 \\ \underline{9} \\ 0 \end{array}$ $\begin{array}{r} 3 \overline{) 3} \\ \underline{3} \\ 0 \end{array}$ $(2 \times 2) \times (3 \times 3)$ 4×9 36	M ₁ A ₁	For the method. For the answer.	Accept the candidate who has used the multiples.
5.	P.6	$\begin{array}{r} 307 \\ 9 \overline{) 2763} \\ \underline{27} \\ 06 \\ \underline{06} \\ 03 \\ \underline{03} \\ 00 \end{array}$	B ₂	For the answer	Revisit converting Hindu Arabic to Roman numerals.
6.	P.5		B ₁ B ₁	For 21 For 28	Accept 1,3,6,10,15,21,28 (triangular numbers)
7.	P.6	SI = P x R x T Sh 200,000 x $\frac{15}{100}$ x 4 Sh $\frac{200,000 \times 15 \times 4}{100}$ Sh 2,000 x 10 Sh 20,000	M ₁ A ₁	For the method. For the answer.	Help candidates to understand the meaning of the terms used e.g. principle, rate and time.
8.	P.7	$\begin{array}{r} 100 \text{ ms} \\ 10 \text{ ms} \\ + 1 \text{ ms} \\ \hline 111 \text{ ms} \end{array}$	B ₂	For the answer	Accept any other method leading to correct answer.
9.	P.7	Set N = {1, 2} Proper subsets = $2^n - 1$ $2^2 - 1$ $(2 \times 2) - 1$ $4 - 1$ = 3 proper subsets	M ₁ A ₁	For the method. For the answer.	Make a review on listing proper subsets.
10.	P.5		B ₁ B ₁	For '(-5)' For '-3'	Encourage candidates to count gaps when using a number line.

11.	P.4	$\begin{array}{r} \text{Years} \quad \text{months} \\ 7^{\circ} \quad 05 \quad 12 + 5 \\ -2 \quad 10 \quad = 17 \\ \hline 4 \quad 07 \end{array}$	B ₁	For the method.	Make a review on operation of time, weeks and days etc.
12.	P.6	2(finite 7) = 2, 9, 16 23, 30	B ₁	For the answer.	
13.	P.5	$\begin{array}{l} 10m = 1dm \quad 1m = 10dm \\ 1m = \frac{1}{10} dm \\ 4800m = (\frac{1}{10} \times 4800)dm \\ = 480dm \end{array}$	M ₁	For the method.	Revisit metric conversion.
14.	P.7	$\begin{array}{l} n + 70^{\circ} + 70^{\circ} = 180^{\circ} \\ n + 140^{\circ} - 140^{\circ} = 180^{\circ} - 140^{\circ} \\ n = 40^{\circ} \end{array}$	A ₁	For the answer.	
15.	P.6	$\begin{array}{l} 7k + 2 - (3k - 5) \\ 7k + 2 - 3k + 5 \\ 7k - 3k + 2 + 5 \\ 4k + 7 \end{array}$	M ₁	For the method.	Expose candidates to figures with properties.
16.	P.7	$\begin{array}{l} 0.0082 \times 10 = 00.082 \\ 00.082 \times 10 = 000.82 \\ 000.82 \times 10^{-3} = 8.2 \\ = 8.2 \times 10^{-3} \end{array}$	A ₁	For the answer.	
17.	P.7	<p>(PnQ)'</p> 	B ₂	For the answer	Make a review on set descriptions
18.	P.6	$\begin{array}{l} \text{Range} = H - L \\ 8 - 10 \\ 8 - (-10) \\ 8 + 10 \\ = 18 \end{array}$	M ₁	For the method.	Encourage candidates to make use of multiplier rules.
19.	P.6	$\begin{array}{r} \text{Mk } 5 \ 6 \ 9^{\circ} \ 10 \\ \text{Mk } 5 \ 6 \ 4 \ 8 \\ \hline 42 + 1 \\ 43 \end{array}$ <p>43 x sh 10,000 Sh 430,000</p>	B ₁	For 43 notes	Help candidates to understand why one is added.
20.	P.6	triangular prism	B ₁	For the answer	
			B ₂	For the answer	Expose candidates to all solid shapes with their nets.
SECTION B					
21.	P.7	a) At 9 : 20am	B ₁	For the answer	Make a review on timetables in both 12 and 24 hour clock system.
		(b) Midday = 12 : 00 hours	B ₁	For the answer	
		(c) Hours min	M ₁	For the method.	
		$\begin{array}{r} 12^1 : 00^{60} \quad 3 : 30 \\ -8 : 00 \quad + : 30 \\ \hline 3 : 00 \quad 3 : 00 \end{array}$	A ₁	For the answer.	

22.	P.6	It takes 4 hours	M ₁	For the method.	Expose candidates to application of L.C.M																																								
		a) <table><tr><td>2</td><td>48m</td><td>36m</td><td>24m</td><td>60m</td></tr><tr><td>2</td><td>24</td><td>18</td><td>12</td><td>30</td></tr><tr><td>2</td><td>12</td><td>9</td><td>6</td><td>15</td></tr><tr><td>2</td><td>6</td><td>9</td><td>3</td><td>15</td></tr><tr><td>3</td><td>3</td><td>9</td><td>3</td><td>15</td></tr><tr><td>3</td><td>1</td><td>3</td><td>1</td><td>5</td></tr><tr><td>5</td><td>1</td><td>1</td><td>1</td><td>5</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>				2	48m	36m	24m	60m	2	24	18	12	30	2	12	9	6	15	2	6	9	3	15	3	3	9	3	15	3	1	3	1	5	5	1	1	1	5	1	1	1	1	1
		2				48m	36m	24m	60m																																				
		2				24	18	12	30																																				
		2				12	9	6	15																																				
2	6	9	3	15																																									
3	3	9	3	15																																									
3	1	3	1	5																																									
5	1	1	1	5																																									
1	1	1	1	1																																									
$(2 \times 2) \times (2 \times 2) \times (3 \times 3) \times 5$ $(4 \times 4) \times (9 \times 5)$ 16×45 $= 720m$																																													
	A ₁	For the answer																																											
P.5	b) (i) L.C.M = Fy U Fn	M ₁	For the method.																																										
	$(2 \times 3) \times 6 \times 5$ $(6 \times 6) \times 5$ 36×5 180	A ₁	For the answer.																																										
	(ii) $y = (2 \times 3) \times 6$ $= 6 \times 6$ $= 36$	B ₂	For the answer																																										
23.	P.7	a) $1800(n-2) = \text{int} < \text{sum}$ $180^\circ(n-2) = 720^\circ$ $180n - 360^\circ = 720^\circ$ $180^\circ n - 360^\circ + 360^\circ = 720^\circ + 360^\circ$ $180^\circ n = 1080^\circ$ $180^\circ n = 1080^\circ$ $180^\circ n = 1080^\circ$ $180^\circ = 180^\circ$ $n = 6$ The polygon is hexagon.	B ₁	For the equation	Make a review on interior and exterior angles.																																								
			B ₁	For 6 sides																																									
		b) i) $n - 2$ $6 - 2$ $= 4$ triangles	B ₁	For naming the polygon																																									
			B ₁	For the answer																																									
		ii) $2(n - 2)$ $2(6 - 2)$ 2×4 8 right angles	B ₁	For the answer																																									
24.	P.7	a)	B ₁	For 50%	Follow through candidate's work. Accept any other method leading to correct answer.																																								
		<table><tr><td>Above 12yrs</td><td>remainder</td><td>11years</td><td>below 11yrs</td></tr><tr><td>50%</td><td>100% - 50%</td><td>20% of 50%</td><td>50 - 10%</td></tr><tr><td></td><td>50%</td><td>$\frac{20}{100} \times 50\%$</td><td>40%</td></tr><tr><td></td><td></td><td>10%</td><td></td></tr></table>	Above 12yrs	remainder		11years	below 11yrs	50%	100% - 50%	20% of 50%	50 - 10%		50%	$\frac{20}{100} \times 50\%$	40%			10%		B ₁	For 10%																								
		Above 12yrs	remainder	11years		below 11yrs																																							
50%	100% - 50%	20% of 50%	50 - 10%																																										
	50%	$\frac{20}{100} \times 50\%$	40%																																										
		10%																																											
40% of children below 11 years.	B ₁	For 40%																																											

		(b) 40% rep 12 pupils 1% rep $\frac{12}{40}$ 100% rep $\frac{12}{40} \times 100$ $= \frac{12}{40} \times 100$ $= 30$ pupils	M ₁ A ₁	For the method For the answer													
25	P.7	a) $(25 + 2k + k - 2) - (15 + k + k) = 13$ $25 + 3k - 2 - 15 - 2k = 13$ $25 - 2 - 15 + 3k - 2k = 13$ $23 - 15 + k = 13$ $8 + k = 13$ $8 - 8 + k = 13 - 8$ $k = 5$	B ₁ B ₁ B ₁	For the equation For the method For 5	Make a review on algebra basing on collecting like terms.												
		(b) $15 + k + k + 25 + 2k$ $15 + 25 + k + k + 2k$ $40 + 4k$ $40 + (4 \times 5)$ $40 + 20$ 60 $n(\text{MUE}) = 60$	B ₁	For the method													
		c) Probability = $\frac{n(E)}{n(s-s)}$ $n(E) = 15 + 5 + 5$ $= 25$ $n(s-s) = 60$ Probability = $\frac{25}{60}$	B ₁	For n(MUE) For the answer													
26	P.7	Let the son's age be w. <table border="1"><thead><tr><th></th><th>Wasswa</th><th>son</th><th>total</th></tr></thead><tbody><tr><td>now</td><td>4w</td><td>w</td><td></td></tr><tr><td>In 6yrs</td><td>4w + 6</td><td>w + 6</td><td>30</td></tr></tbody></table> $4w + 6 - w + 6 = 30$ $4w - w + 6 + 6 = 30$ $3w + 12 = 30$ $3w + 12 - 12 = 30 - 12$ $3w = 18$ $\frac{3w}{3} = \frac{18}{3}$ $w = 6$ Wasswa = 4w $= 4 \times 6$ $= 24$ years		Wasswa	son	total	now	4w	w		In 6yrs	4w + 6	w + 6	30	B ₁ B ₁ B ₁	For the equation. For 6 sides For 24 years	Make enough practice on related questions
			Wasswa	son	total												
now	4w	w															
In 6yrs	4w + 6	w + 6	30														
b) (6 - 3) years 3 years	B ₂	For the answer															
27	P.6	a) Paul = 20 seconds Mercy = 12 seconds	B ₁ B ₁	For each correct answer	Encourage candidates to identify the scale before answering the questions												
		b) Paul was at point E	B ₁														
		c) covered 5cm	B ₁														
28	P.3	Magic sum = $7 + 8 + 3$ $= 18$	B ₁	For 18	Accept any other method leading to correct answer.												

THE SIPTO MOCK MATHEMATICS

		<table><tr><td>9</td><td>t=2</td><td>7</td></tr><tr><td>4</td><td>k=6</td><td>8</td></tr><tr><td>n= 5</td><td>10</td><td>3</td></tr></table> <p>k = 18 – (4 + 8) = 18 – 12 = 6 n = 18 – (4 + 9) = 18 – 13 = 5 t = 18 – (9 + 7) = 18 – 16 = 2</p>	9	t=2	7	4	k=6	8	n= 5	10	3	B ₁	For 6															
9	t=2	7																										
4	k=6	8																										
n= 5	10	3																										
			B ₁	For 5																								
			B ₁	For 2																								
29	P.7	a) 1US \$ = Ug sh 3690 300 US \$ =Ug sh 3690 x 300 Ug sh 1,107,000 b) 1ksh = Ug sh 25 18000 Ksh = Ugsh 25 x 18000 Ugsh 450,000 Ugsh 450,000 Ug sh 3750 ∴ (45000) US dollars 375 120 US dollars	M ₁ A ₁ M ₁ A ₁ M ₁ A ₁	For the method. For the answer For the method. For the answer For the method. For the answer	Make a review on exchange rate on tables																							
30	P.7	<u>Area of article</u> Area = πr ² = $\frac{22}{7} \times 14^2 \text{cm} \times 14\text{cm}$ = 22 x 2cm 14cm = 44cm x 14cm = 616cm ² <u>Area of parallelogram</u> = $\frac{1}{4}$ of circle = $\frac{1}{4} \times 616\text{cm}^2$ = 154cm ² 154cm ² = b x h 154cm ² = 14cm x h 154cm² = 14cmh 14cm 14cm 11cm = h Height = 11cm	B ₁ B ₁ B ₁ B ₁	For 616cm ² 154cm ² For the method For 11cm	Encourage candidates to find area and perimeter of plane shapes.																							
31	P.5	a) <table><tr><td>H</td><td>T</td><td>0</td></tr><tr><td>3</td><td>4</td><td>7</td></tr><tr><td>3</td><td>4</td><td>0</td></tr><tr><td>+</td><td>1</td><td>0</td></tr><tr><td>3</td><td>5</td><td>0</td></tr></table> <table><tr><td>x10³</td><td>x10²</td><td>x10¹</td><td>x10⁰</td></tr><tr><td>4</td><td>2</td><td>1</td><td>9</td></tr></table> (b) (4 x 10 ³) + (2 x 10 ²) + (1 x 10 ¹) + (9 x 10 ⁰)	H	T	0	3	4	7	3	4	0	+	1	0	3	5	0	x10 ³	x10 ²	x10 ¹	x10 ⁰	4	2	1	9	M ₁ A ₁ B ₂	For the method For the answer For the answer	Make a review on rounding off both on whole numbers and decimal numbers.
H	T	0																										
3	4	7																										
3	4	0																										
+	1	0																										
3	5	0																										
x10 ³	x10 ²	x10 ¹	x10 ⁰																									
4	2	1	9																									

32

$$10\text{km} = 1\text{cm}$$

$$1\text{km} = \frac{1}{10}$$

$$60\text{km} = \frac{1}{10} \times 60\text{cm}$$

$$= 6\text{cm}$$

$$10\text{km} = 1\text{cm}$$

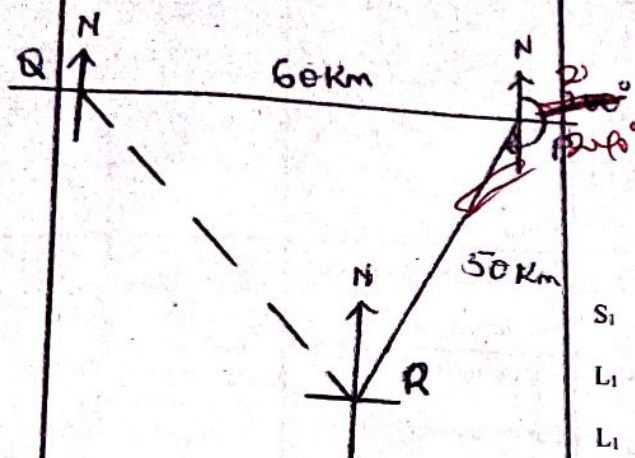
$$1\text{km} = \frac{1}{10}$$

$$50\text{km} = \frac{1}{10} \times 50\text{cm}$$

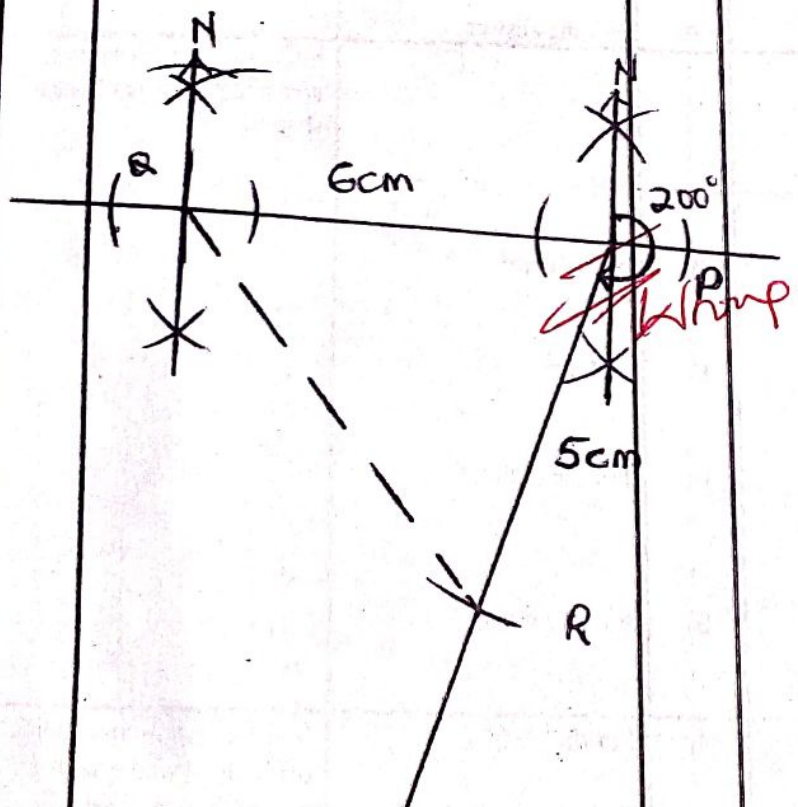
$$= 5\text{cm}$$

Make a review on rounding off both on whole numbers and decimal numbers

Sketch



- S_1 For the sketch
 L_1 For 6cm
 L_1 For 5cm
 C_1 For 200°

Accurate Diagram

b)

$$\text{Line QR} = 6.5\text{CM}$$

$$1\text{km} = (6.5 \times 10)\text{km}$$

$$= 65\text{km}$$

$$3\text{cm} \pm 0.1$$

$$3 \times 10 = 30\text{km}$$

 L_1 For \overline{QR}