

THE PRIME MOCK EXAMINATIONS 2024

P.7 MATHEMATICS MARKING GUIDE

SECTION A (40 MARKS)																											
NO	SOLUTION	MARKS	COMMENT	NO	SOLUTION	MARKS	COMMENT																				
1	$ \begin{array}{r} 64 \\ + 24 \\ \hline 88 \end{array} $	B ₂	Follow through	2	19037 = Nineteen thousand thirty Seven.	M ₁ A ₁	Follow through																				
3	$ \begin{array}{r} n(n+1) \\ \hline 2 \\ 6(6+1) \\ \hline 2 \\ 3(7) \\ = 21 \end{array} $	M ₁ A ₁	Follow through	4	$ \begin{aligned} Y &= \{1, 2, 4, 8\} \\ \text{No of subsets} &= 2^n \\ &= 2^4 \\ &= 2 \times 2 \times 2 \times 2 \\ &= 16 \end{aligned} $	M ₁ A ₁	Follow through																				
5	9.076 × 10 ⁻³	M ₁ A ₁	Follow through	6	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Hrs</th> <th style="width: 50%;">Mins</th> <th style="width: 50%;"></th> </tr> </thead> <tbody> <tr> <td>1 1</td> <td>40 am</td> <td>9 0</td> </tr> <tr> <td>+ 6</td> <td>50</td> <td>- 6 0</td> </tr> <tr> <td>1 8</td> <td>30 hrs</td> <td>3 0</td> </tr> </tbody> </table>	Hrs	Mins		1 1	40 am	9 0	+ 6	50	- 6 0	1 8	30 hrs	3 0	M ₁ A ₁	Follow through								
Hrs	Mins																										
1 1	40 am	9 0																									
+ 6	50	- 6 0																									
1 8	30 hrs	3 0																									
7				8	$ \begin{aligned} K &= 4, L = 3, M = 2 \\ KL - M & \\ (4 \times 3) - 2 & \\ 12 - 2 & \\ \underline{10} \end{aligned} $	M ₁ A ₁	Follow through																				
9	$ \begin{aligned} 1kg &= 1000gm \\ \frac{256}{1000} \times 1000gm & \\ 256gm \end{aligned} $	M ₁ A ₁	Follow through	10	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">T</th> <th style="width: 25%;">N</th> <th style="width: 25%;">D</th> <th style="width: 25%;">NBKS</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>7</td> <td>5</td> <td>18-2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>6</td> </tr> </tbody> </table> <p>Prob = $\frac{6}{18}$</p>	T	N	D	NBKS	18	7	5	18-2				6	M ₁ A ₁	Follow through								
T	N	D	NBKS																								
18	7	5	18-2																								
			6																								
11	$ \begin{aligned} \frac{26}{9} &= 2 \text{ rem } 8 \\ 26 &= 8 \text{ finite } 9 \end{aligned} $	M ₁ A ₁	Follow through	12	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 33%;">2</td> <td style="width: 33%;">18</td> <td style="width: 33%;">15</td> <td style="width: 33%;"></td> </tr> <tr> <td>3</td> <td>9</td> <td>15</td> <td>2x3x3x5</td> </tr> <tr> <td>3</td> <td>3</td> <td>5</td> <td>6x15</td> </tr> <tr> <td>5</td> <td>1</td> <td>5</td> <td>120</td> </tr> <tr> <td>1</td> <td>1</td> <td></td> <td>120+3</td> </tr> </tbody> </table> <p>122</p>	2	18	15		3	9	15	2x3x3x5	3	3	5	6x15	5	1	5	120	1	1		120+3	M ₁ A ₁	Follow through
2	18	15																									
3	9	15	2x3x3x5																								
3	3	5	6x15																								
5	1	5	120																								
1	1		120+3																								
13	$ \begin{aligned} 18 \div \frac{2}{3} & \\ 18 \times \frac{3}{2} & \\ 9 \times 3 & \\ = 27 \end{aligned} $	M ₁ A ₁	Follow through	14	$ \left(\frac{1}{2} \times \frac{11}{22} \times \frac{5}{7} \right) + 35m $ <p>55+35 90m</p>	M ₁ A ₁	Follow through																				

15 $Sh 55000 + sh 8500 = Sh 63500$

Follow through

16 $3x + 41^\circ + 64^\circ = 180^\circ$
 $3x + 105^\circ = 180^\circ$
 $3x = 180^\circ - 105^\circ$
 $\frac{3x}{3} = \frac{75^\circ}{3}$
 $x = 25^\circ$

Follow through

17 $C \quad G \quad TR$
 $3 \quad 5 \quad 8$
 600
 $\frac{120}{600} x 3$
 120×3
 $= 360$

Follow through

18 $3x 2(2-x) = 16$
 $6-2x = 16$
 $-2x = 16-6$
 $\frac{-2x}{-2} = \frac{10}{-2}$

Follow through

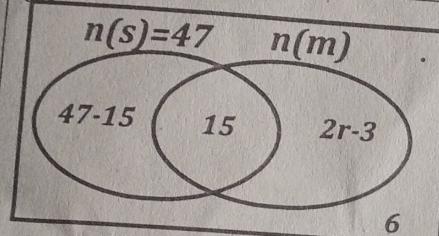
19 $M = \frac{SOi}{NO}$
 $7 = \frac{x+2+9+10+4+x}{5}$
 $35 = 2x+25$
 $35-25 = 2x+25-25$
 $\frac{10}{5} = \frac{2x}{2}$
 $5 = x$
 $\therefore x = 5$

Follow through

20 $\left[\frac{90}{1000} \div \frac{1}{3600} \right] km/hr$
 $\frac{90}{1000} \times \frac{3600}{1}$
 9×36
 $= 324 km/h$

Follow through

21 (a)



SECTION B (60 marks)

(b) $47-15+15+2r-3+6 = 86$
 $47+3+2r = 86$
 $59+2r = 86$
 $2r = 86-59$
 $\frac{2r}{2} = \frac{27}{2}$
 $r = 13.5$

05

22 (a) 103_{five} to base three

$$\begin{array}{r} 103_{\text{five}} \\ (2 \times 5^2) + (0 \times 5^1) + (3 \times 5^0) \\ (2 \times 25) + (0 \times 5) + (3 \times 1) \\ 50 + 0 + 3 \\ 53_{\text{ten}} \end{array}$$

B1 Follow through

$$\begin{array}{|c|c|c|} \hline 3 & 53 & 2 \\ \hline 3 & 17 & 2 \\ \hline 3 & 5 & 2 \\ \hline & 1 & \\ \hline \end{array}$$

M1

1222_{three}

A1

(b) $302x = 200_{\text{five}}$

$$\begin{array}{r} (3 \times x^2) + (0 \times x^1) + (3 \times x^0) = \\ (2 \times 5^2) + (0 \times 5^1) + (0 \times 5^0) \\ 3x^2 + 0 + 2 = 50 + 0 + 0 \\ 50 + 2x \end{array}$$

$$\begin{array}{r} 3x^2 = 50 \\ 3x^2 = 50-2 \\ 3x^2 = 48 \\ \frac{3x^2}{3} = \frac{48}{3} \\ \sqrt{x^2} = \sqrt{16} \\ x = 4 \end{array}$$

M1

A1

23

Sugar Sh 3800x3 Sh 11400	Posho flour $\frac{5}{4} \times sh 2000$ Sh 2500	Cooking oil $\frac{500}{1000} \times 7500$ Sh 3750	Blue band Sh 6500
--------------------------------	--	--	----------------------

(a) T.E

$$Sh 11400 + sh 2500 + sh 3750 + sh 6500 \\ = Sh 24150$$

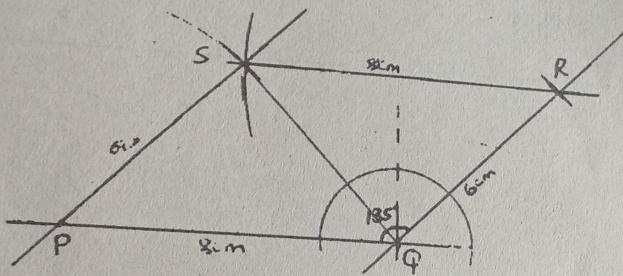
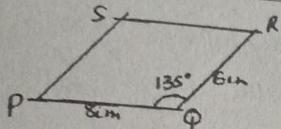
(b) Sh 30000-sh 24150
Sh 5850

24 (a) $M_3 = \{3, 6, 9, 12, 15, 18, 21, 24, 27, 30, \dots\}$
Sum of digits given
 $4 + 8 + 9 = 21$
 $21 + m = 21$
 $m = 21 - 21 = 0$

(b) $2 \mid \begin{array}{r|rr} 40 & 50 \\ 2 & 20 & 25 \\ 2 & 10 & 25 \\ 2 & 5 & 25 \\ 5 & 1 & 5 \\ 1 & & 1 \end{array}$

$$2 \times 2 \times 2 \times 5 \times 5 \\ 4 \times 50 \\ 200 \text{ mins}$$

25



$$QS = 5.8 \text{ cm}$$

26 (a) 3:30pm → 15:30 hrs

(b) $10:00$
 $- 04:00$
 $\hline 6:00 \text{ hrs}$

$$= \frac{6^3}{21} \\ = 3x2 \\ = 6 \text{ patients}$$

(c) $11:00$
 $- 05:00$
 $\hline 6:00$
 $= 6 \text{ hours}$

B₁ Follow through

M₁

A₁

M₁

A₁

27

(a) $P = 6 \text{ cm} + 8 \text{ cm}$
 $P = 14 \text{ cm}$

(b) $2x+13 = 3x+5$
 $13-5 = 3x-2x$

$$8 = x$$

$$X = 8$$

$$3x = (3x8 \text{ cm}) \\ = 24 \text{ cm}$$

(c) $A = (L \times W) + (L \times W)$
 $A = (24 \text{ cm} \times 8 \text{ cm}) + (14 \text{ cm} \times 5 \text{ cm})$
 $A = 192 \text{ cm}^2 + 70 \text{ cm}^2$
 $A = 262 \text{ cm}^2$

B₁ Follow through

M₁

A₁

28

Eng

$\frac{1}{3}$

Rem

$\frac{3}{3} - \frac{1}{3}$

Mtc

$\frac{1}{4} \times \frac{2}{3}$

Etm

$\frac{1}{3} + \frac{1}{6}$

Others

$\frac{2}{2} - \frac{1}{2}$

$$\frac{\frac{1}{2}}{12} = \frac{1}{6}$$

$$\frac{2+1}{6} = \frac{1}{2}$$

$$\frac{1}{6} = \frac{1}{2}$$

$$\frac{1}{6} = \frac{1}{2}$$

(b) $(210 \div \frac{1}{2})$

$$210 \times 2$$

$$= 420 \text{ books}$$

29 (a) $180^\circ - 53^\circ$

$$= 127^\circ$$

$$180^\circ - (55^\circ + 127^\circ)$$

$$180^\circ - 152^\circ$$

$$= 28^\circ$$

$$25^\circ + 28^\circ$$

$$= 53^\circ$$

$$(b) 53^\circ + 53^\circ$$

$$106^\circ$$

$$\begin{array}{c|c} (a) D & K \\ m & 25 + m \\ (m+10) & (25+m+10) \end{array}$$

Follow through

 B_2

Follow through

 M_1

Follow through

 A_1

Follow through

 M_1

Follow through

 M_1 29 (a) $180^\circ - 53^\circ$ $= 127^\circ$ $180^\circ - (55^\circ + 127^\circ)$ $180^\circ - 152^\circ$ $= 28^\circ$ $25^\circ + 28^\circ$ $= 53^\circ$ $(b) 53^\circ + 53^\circ$ 106° $(a) D$ m $25 + m$ $(m+10)$ $(25+m+10)$ $2(m+10) = 35 + m$ $2m+20 = 35+m$ $2m-m = 35-20$ $m = 15$ A_1 (b) $\begin{array}{c|c|c|c} M+10 & 25+m+10 & Total & A_1 \\ 15+10 & 25+15+10 & 25+50 & 75 \\ 25 & 50 & & \end{array}$ $30 (a) (4 \times 4) + (2 \times 4) + (2 \times 4)$ $16 + 8 + 8$ $16 + 16$ $\underline{32 \text{ cubes}}$ $(b) (4 \times 4 \times 4)$ 64 cubes $64 - 32$ $\underline{32 \text{ cubes}}$ $(c) (16 \times 8)$ $= 128 \text{ cm}^3$ 30 (a) $(4 \times 4) + (2 \times 4) + (2 \times 4)$ $16 + 8 + 8$ $16 + 16$ $\underline{32 \text{ cubes}}$ A_1 M_1 M_1 A_1 $(b) 162 - 135$ 27 mangoes $(a) 54 + 27$ 81 mangoes $32 (a) 54 + 27$ 81 mangoes B_1 M_1 M_1 A_1 $(b) 162 - 135$ 27 mangoes $(c) Travis = 108 \text{ mangoes}$ $\frac{54}{108} \times sh 700$ $= \frac{1}{2} sh 700$ $\underline{\underline{\underline{\underline{= Sh. 37800}}}}$ A_1 M_1 A_1 M_1 A_1