MARKING GUIDE - 2024

SECTION A (02 Marks each)

1.

$$4\overset{2}{5}$$
$$\underline{\times\ 4}$$
$$\underline{180}\ \checkmark\ B2$$

2.

$200 + 70 + (3 \times 1/10) + \left(8 \times \frac{1}{1000}\right)$ $\checkmark M_1$

$200 + 70 + 0.3 + 0.008$

$$\begin{array}{r} 200.0 \\ 70.0 \\ +\quad\ 0.3 \\ \underline{0.008} \\ 270.308 \end{array}\ \checkmark M_1$$

3.

$8 + (-7)$.

$8 - 7\ \checkmark M_1$

$= 1\quad \checkmark M_1$

4.

$\text{Mean} = \dfrac{SOI}{NOI}$

$= \dfrac{-6 + 0 + -4 + 6 + 5 + 7 + 3 + 5}{8}\quad \checkmark M_1$

$= \dfrac{-6 + -4 + 6 + 5 + 7 + 3 + 5}{8}$

$\dfrac{-10 + 26}{8}$

$\dfrac{16}{8}$

$= 2\ \checkmark A_1$

5.

$1\ ,\ 3\ ,\ 6\ ,\ 10\ ,\ 15\ ,\ \underline{21}\ ,\ \underline{28}\ \checkmark B1$

$\underset{+2}{\vee}\ \underset{+3}{\vee}\ \underset{+4}{\vee}\ \underset{+5}{\vee}\ \underset{+6}{\vee}\ \underset{+7}{\vee}\ \checkmark B1$

or

Triangular numbers $\checkmark$

6.

√B2

7.

METHOD 1	METHOD 2
$\frac{2}{3}p + 5 = 1 + p$	$\frac{2p}{3} + 5 = 1 + p$
$3 \times \left(\frac{2p}{3}\right) + 5 \times 3 = 3 \times (1+p)$	$\frac{2p}{3} - \frac{p}{1} + 5 = 1 + p - p$
$2p + 15 = 3 + 3p$ ✓M1	$\frac{2p}{3} - \frac{p}{1} + 5 - 5 = 1 - 5$ ✓M1
$2p - 3p + 15 = 3 + 3p - 3p$	$\frac{2p}{3} - \frac{p}{1} = -4$
$-p + 15 = 3$	L·C·M $= 3$
$-p + 15 - 15 = 3 - 15$	$\frac{2p - 3p}{3} = -4$
$-p = -12$	$3 \times \frac{-p}{3} = -4 \times 3$
$\frac{+p}{+} = \frac{+12}{+}$	$\frac{+p}{+} = \frac{+12}{+}$
$\underline{P = 12}$ /M	$\underline{P = 12}$ /A1

8.

$12 \div \frac{1}{2}$

$12 \times \frac{2}{1}$ ✓M1

$\frac{24}{1}$ /A1

$\underline{= 24 \text{ half kg packets}}$

9. $100\% + 25\% = 125\%$

125% of $y = 500$

$$\frac{125 y \times 100}{100} = 500 \times 100 \checkmark M$$

$$\frac{125 y}{125} = \frac{50000}{125} \quad \overset{400}{}$$

$$y = \underline{400 \text{ pupils}} \checkmark M$$

---

10. no. of trees $= (n + n) - 1$

$ = (25 + 30) - 1 \checkmark M$

$ = 55 - 1$

$ = \underline{54 \text{ trees}} \checkmark M$

---

11. $C = \pi d$

$$88 = \frac{22}{7} \times d$$

$$88 \times 7 = \frac{22 d \times 7}{7}$$

$$\frac{\overset{4}{88} \times 7}{\underset{1}{22}} = \frac{22 d}{22}$$

$4 \times 7 = d$

$\underline{28 \text{ cm}} = d \checkmark B$

Radius

$$\text{Radius} = \frac{\text{Diameter}}{2}$$

$$= \frac{\overset{14}{28} \text{cm}}{\underset{1}{2}}$$

$$= \underline{14 \text{cm}} \checkmark B$$
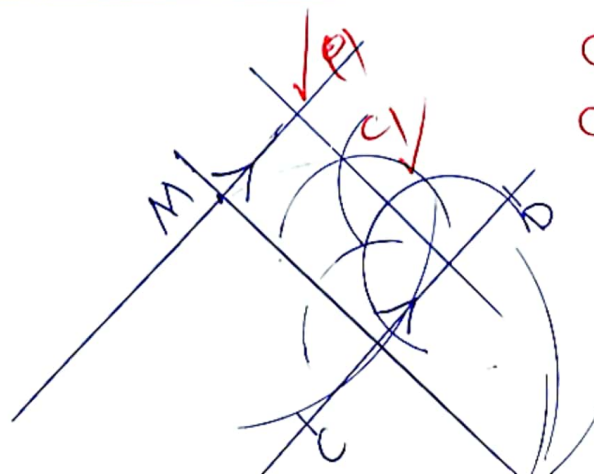
C_1 for $90°$

C_1 for ⌐ parallel line

13.

$$A = \frac{h(a+b)}{2}$$

$$100 = \frac{h(8+12)}{2} \quad \text{[M]}$$

$$100 = \frac{8h + 12h}{2}$$

$$100 = \frac{20h}{2}$$

$$100 \times 2 = \frac{20h \times 2}{2}$$

$$\frac{200}{20} = \frac{20h}{20}$$

$$10cm = h$$

$$\therefore h = 10 \quad \text{[A]}$$

14.

$$\frac{D = 360km \quad T = ??}{S = 60km/h}$$

$$T = \frac{D}{S}$$

$$= \frac{360km}{60 km/hr}$$

$$= \underline{6\ hours}$$

$$\frac{D = 360km \quad T = ??}{S = 90km/hr}$$

$$T = \frac{D}{S}$$

$$= \frac{360 km}{90 km/hr}$$

$$= \underline{4\ hours}\ \text{B1}$$

$$\underline{Less\ hours}$$

$$\begin{array}{r} 6\ hours \\ -\ 4\ hours \\ \hline 2\ hours\ \text{B1} \end{array}$$

B1 for 6hr or 4hrs

15.

$$6^{2q+1} \div 6^2 = 6^0$$

$$6^{2q+1-2} = 6^0 \quad \text{[M]}$$

$$2q+1-2 = 0$$

$$2q - 1 = 0$$

$$2q - 1 + 1 = 0 + 1$$

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

$$q = \frac{1}{2} \quad \text{[A]}$$

16.

$$(6 + 4) \times 2.4$$

$$10 \times 2.4 \quad \text{[M]}$$

$$10 \times \frac{24}{10}$$

$$= \underline{24} \quad \text{[A]}$$

17. $1kg = 1000g$

$43.5kg = \left(\dfrac{435}{10} \times 1000\right) g$ m ✓

$= 43500 \text{ grams}$ ✓ A

18. $2d = m$

$4d + 2d = 180°$ ✓ m ✓

$\dfrac{6d}{6} = \dfrac{\overset{30}{\cancel{180}}°}{6}$

$d = 30°$ ✓ A

19. $449 = 400 + 40 + 9$

$\quad\quad CD \quad XL \quad IX$

$= \underline{CDXLIX}$ ✓ B2

20. $\underline{1:50pm}$ B1

$$\begin{array}{c|cc} & HRS & MIN \\ + & 1 & 50 \\ & 12 & 00 \\ \hline & 13 & 50 \text{ HRS} \end{array}$$ ✓ m2 ✓ B1

SECTION B (60 marks)

21. Children → 3 meat pies @

Adults → 4 chicken pieces @

Children

$\dfrac{72}{3} = \underline{24}$ ✓ B1

Adults	Total
$19\overset{24}{\cancel{2}}48$	24
4	$+ 48$
$= 48$ ✓ ✓	72 people ✓ B1

36. Either: II

6

$\frac{72}{24} \cdot \frac{3}{1}$ /M/

= 3 crates /B/

sh. 20 000
  × 3
sh. 60,000 /B/

22

| 2 | 40 | 50 |
| 2 | 20 | 25 |
| 2 | 10 | 25 | /B/
5	5	25
5	1	5
	1	1

$2 \times 2 \times 2 \times 5 \times 5$ /M/

= 200 minutes /M/

---

b.

$\frac{200}{60}$

= 3 hrs 20 min /B/

HRS	MIN
+ 7	00
3	20
10	20	/B/

∴ They will ring together at 10:20 am

23

$3 - 3 - 2m < 15 - 3$

$-2m < 12$

$\frac{+2m > 12}{+2 \quad -2}$ /B/

$m > -6$ /B/

-6 -5 -4 -3 -2 -1 0 1 2 3 4

$m = \{-5, -4, -3 \cdots \}$ /B/
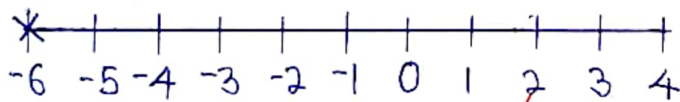
- Reject without curry brackets.
- Reject without three do

---

b.

Year	James	Tom	
Now	d-6	d	Difference
	$\frac{d-6}{2}$	$\frac{d}{4}$	1

$\frac{d-6}{2} - \frac{d}{4} = 1$

L.C.M = 4

$\left(\frac{d-6}{2}\right) \times 4 - \left(\frac{d}{4}\right) \times 4 = 1 \times 4$
$\overline{4}$

$2(d-6) - d = 4$

$2d - 12 - d = 4$

$2d - d - 12 = 4$

$d - 12 = 4$

$d - 12 + 1 = 4 + 12$

$d = 16$ years

3.

Year	James	Tom	
Now	d-6	d	Difference
	$\left(\frac{d-6}{2}\right) - \frac{d}{4}$		1

$$\left(\frac{d-6}{2}\right) - \left(\frac{d}{4}\right) = 1 \quad \checkmark \; M$$

$$\frac{2(d-6)-d}{4} = 1$$

$$\frac{2d-12-d}{4} = 1$$

$$\left(\frac{d-12}{4}\right) \times 4 = 1 \times 4$$

$$d-12 = 4$$

$$d-12+12 = 4+12 \quad / A$$

$$\underline{\underline{d = 16 \text{ years}}}$$

James' age
$$d-6 = 16-6$$
$$= \underline{\underline{10 \text{ years}}} \quad / B$$

4. $\quad 5a + a + 7 = 37 \quad / M /$

$\qquad 6a + 7 = 37$

$\qquad 6a + 7 - 7 = 37 - 7$

$\qquad \dfrac{6a}{6} = \dfrac{30}{6}^{5}$

$\qquad\qquad a = 5 \quad / A$

5.

Total	Neither	Probability
$5a = 5\times5 = 25$	$a-3$	$P = \dfrac{\text{Desired Chances}}{\text{Total Chances}}$
$2a = 2\times5 = 10$	$5-3$	
$a+7 = 5+7 = 12$	$= 2$	$= \dfrac{2}{49} \quad \checkmark B$
$a-3 = 5-3 = \dfrac{2}{49} \; B$		

6.

Mangoes	Rem	Apples	Total	Rest COranges
$\frac{1}{4}$	$\frac{4-1}{4}$ $\frac{4}{4}$	$50\% = \frac{50}{100}^{1}_{2}$	$\frac{1}{4} + \frac{3}{8}$	$1 - \frac{5}{8}$
	$\frac{3}{4}$	$\frac{1}{2} \times \frac{3}{4}$	$\frac{2+3}{8}$	$\frac{8-5}{8}$
		$= \frac{3}{8} \; B$	$= \frac{5}{8} \; B$	$\frac{3}{8} \; /B$

b. $111 \rightarrow \frac{1}{4}$

$111 \div \frac{1}{4}$ √M

$111 \times \frac{4}{1}$

$= 444$ people √A

27. $50° + 70° = 4e$ √M

$\dfrac{\overset{30}{\cancel{120}°}}{\cancel{4}} = \dfrac{4e}{4}$

$\underline{30° = e}$ /A

ii $4e + 28 = 4m$ √M

$4 \times e + 28 = 4m$

$4 \times 30 + 28 = 4m$

$120 + 28 = 4m$

$\dfrac{\overset{37}{\cancel{148}}}{4} = \dfrac{4m}{\cancel{4}}$

$\underline{37° = m}$ /A

b. no of sides $= \dfrac{360°}{1\,ext\,\angle}$

$5 = \dfrac{360}{5n + 12}$ √M

$5(5n+12) = \dfrac{360 \times 5n+12}{5n+12}$

$25n + 60 = 360°$

$25n + 60 - 60 = 360° - 60°$

$\dfrac{\cancel{25}n}{\cancel{25}} = \dfrac{\overset{12}{\cancel{300}}}{\cancel{25}}$

$\underline{n = 12°}$ A

27

2	1	0		=	1	0
1	0.4	k			5	5

seven

$(1 \times k^2) + (0 \times k^1) + (4 \times k^0) = (5 \times 7^1) + (5 \times 7^0)$ ✓M₁

$\qquad k^2 + 4 \qquad = 35 + 5$

$\qquad\qquad k^2 + 4 \qquad = 40$

$\qquad\qquad k^2 + 4 - 4 \qquad = 40 - 4$

$\qquad\qquad\qquad \sqrt{k^2} = \sqrt{36}$ M₁

$\qquad\qquad\qquad k = 6$

$\qquad$ ∴ k is base six A₁

Reject without (base six)

b.

Day − Days = _(mod 7)	$(4 + 7) - 6 = (mod 7)$
$4 - 97 = _ (mod 7)$ ✓M₁	$11 - 6 = (mod 7)$
$4 - \dfrac{97}{7} = _(mod 7)$	$= 5 (mod 7)$ A₁
$4 - 13 rem 6 = _ (mod 7)$	∴ 5 represents Friday
$4 - 6 = _(mod 7)$	

28.

METHOD 1	METHOD 2

METHOD 1

Paul	Quest	Richard	Total
2p	3p	5p	10p

More = 5p − 3p

$\qquad = 2p$ ✓B₁

$\dfrac{2p}{2} = \dfrac{sh \cdot 80000}{2}$

$\qquad p = sh \cdot 40000$ B₁

Total share

$\qquad 10p$

$\qquad 10 \times p$ M₁

$\qquad 10 \times 40000$

$\qquad = sh \cdot 400000$ A₁

METHOD 2

More = 5p − 3p

$\qquad = 2p$ ✓

$2P = sh \cdot 80000$

$1P = sh \cdot \dfrac{80000}{2}^{40000}$

$\qquad = sh \cdot 40000$

$10p = 10 \times 40000$

$\qquad = sh \cdot 400,000$

Accept other correct working.

	METHOD 1	METHOD 2	
b	5p 5×p 5×40000 = sh·200,000 ✓	p = sh·40,000 5p = 5×sh·40000 = sh·200 000 ✓	

29.

METHOD 1:
$$20\,000 \times 370$$
$$3700000$$
$$\times \quad 2$$
$$sh·74,00,000 \quad B1 ✓$$

METHOD 2:
$$25000 \times 3950$$
$$3950000$$
$$\times \quad 25$$
$$+19750000$$
$$79000000$$
$$98750000$$
$$sh·98,750000 \quad B1 ✓$$

$$98,750,000$$
$$+\ 7,400,000$$
$$106,150,000 \quad B1 ✓$$
$$Ug·sh·106,150,000$$

b.
$$\frac{355}{1491000}\,M1 ✓$$
$$\frac{}{4200_1}$$

$$= 355\ euros \quad M1 ✓$$

30

$2 \times n \times 5 = 50$ M1 $\dfrac{10n}{10} = \dfrac{50}{10}$ $n = 52$ ✓ A1	**b**	GCF = Int Product $= 2 \times 5$ $= 10$ ✓ B1	**c** k = 2×2×3×5 M1 ✓ $= 4 \times 15$ $= 60$ A1

31

$$\begin{array}{r} 0.8 \\ +\ 0.4 \\ \hline 1.2 \end{array} \quad M1 ✓$$

$$\left(\frac{24}{100} \times \frac{18}{100}\right) \div \frac{12}{10}$$

$$\frac{24 \times 18 \times 10}{100 \quad 100 \quad 12} \quad M1 ✓$$

$$\frac{36}{1000}$$
$$= 0.036 \quad A1 ✓$$

Accept any other correct working

$$\left(\tfrac{1}{2} + \tfrac{1}{4}\right) \div \tfrac{1}{3}$$
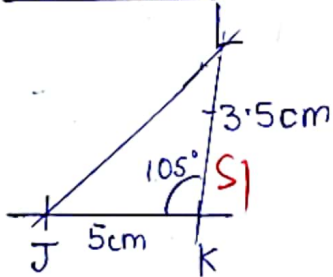
$$\left(\frac{2+1}{4}\right) \div \tfrac{1}{3} \quad \checkmark M$$

$$\frac{3}{4} \div \frac{1}{3}$$

$$\frac{9-4}{12}$$

$$= \frac{5}{12} \quad \checkmark A$$

Accept any other correct working.

Sketch

3·5cm

105° S1

J   5cm   K

Accurate diagram

3·5cm

105°

J   5cm   K
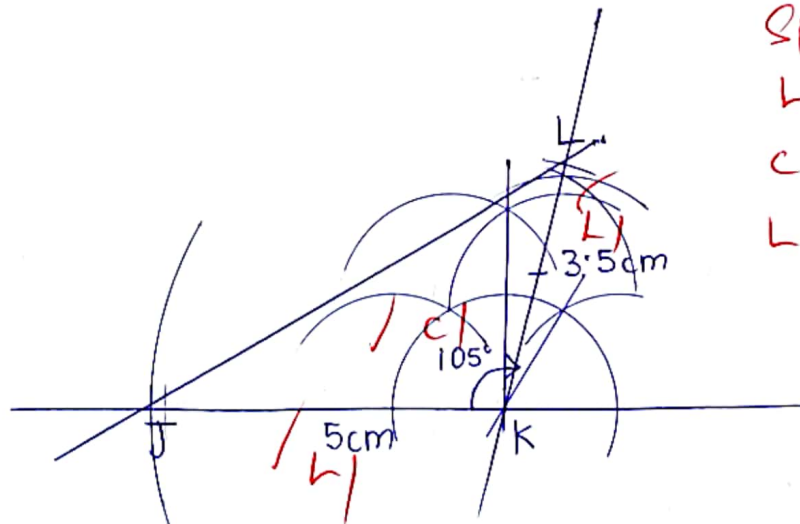
S1 for sketch
L1 for 5cm
C1 for 105°'
L1 for 3·5cm'

Angle KJL = 30°, 29°, 31° $\checkmark$ B1