



**MAJLIS PENGETUA SEKOLAH MALAYSIA
(CAWANGAN PULAU PINANG)**

**MODUL BERFOKUS KBAT SPM
MATHEMATICS
KERTAS 1**

**Answers
Skema Jawapan**

Question Number	Answer	Question Number	Answer	Question Number	Answer	Question Number	Answer
1	D	11	D	21	B	31	B
2	D	12	D	22	B	32	C
3	B	13	B	23	D	33	B
4	B	14	C	24	C	34	D
5	A	15	B	25	B	35	C
6	B	16	D	26	A	36	B
7	C	17	C	27	B	37	A
8	C	18	C	28	C	38	A
9	B	19	A	29	D	39	A
10	B	20	B	30	A	40	A



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MODUL BERFOKUS KBAT SPM
1449/2(PP)

MATEMATIK

KERTAS 2

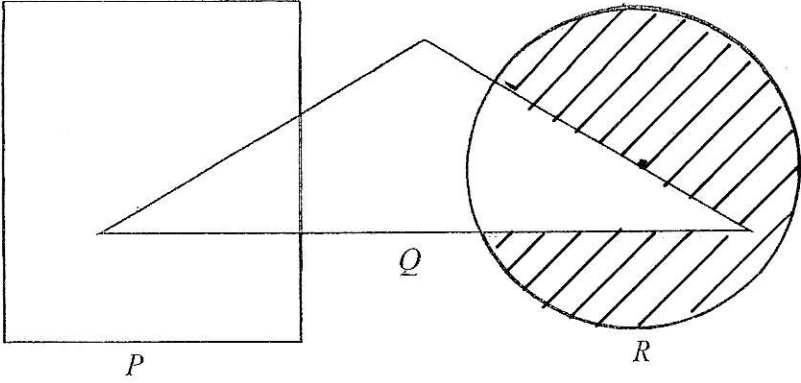
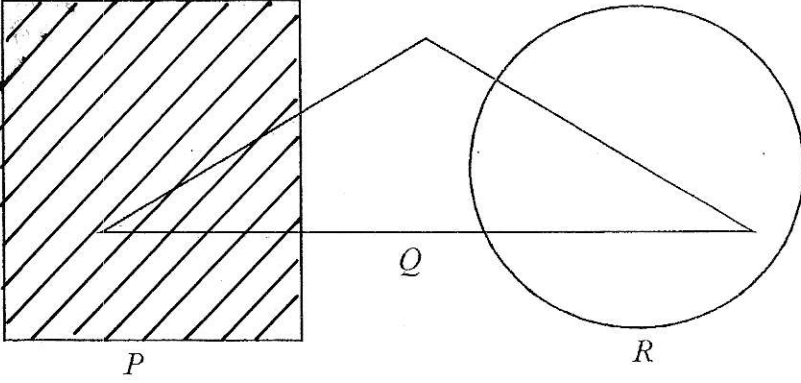
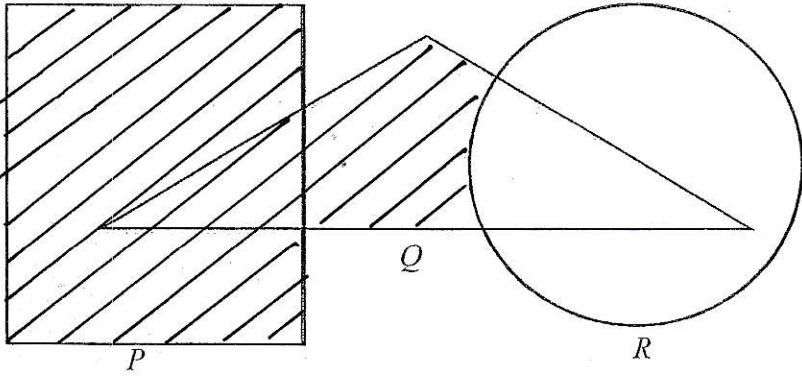
PERATURAN PEMARKAHAN

UNTUK KEGUNAAN PEMERIKSA SAHAJA

AMARAN

Peraturan pemarkahan ini adalah **SULIT** dan **Hak Cipta MPSM Pulau Pinang**. Kegunaannya khusus untuk pemeriksa yang berkenaan sahaja. Sebarang maklumat dalam peraturan pemarkahan ini tidak boleh dimaklumkan kepada sesiapa. Peraturan pemarkahan ini tidak boleh dikeluarkan dalam apa-apa bentuk media.

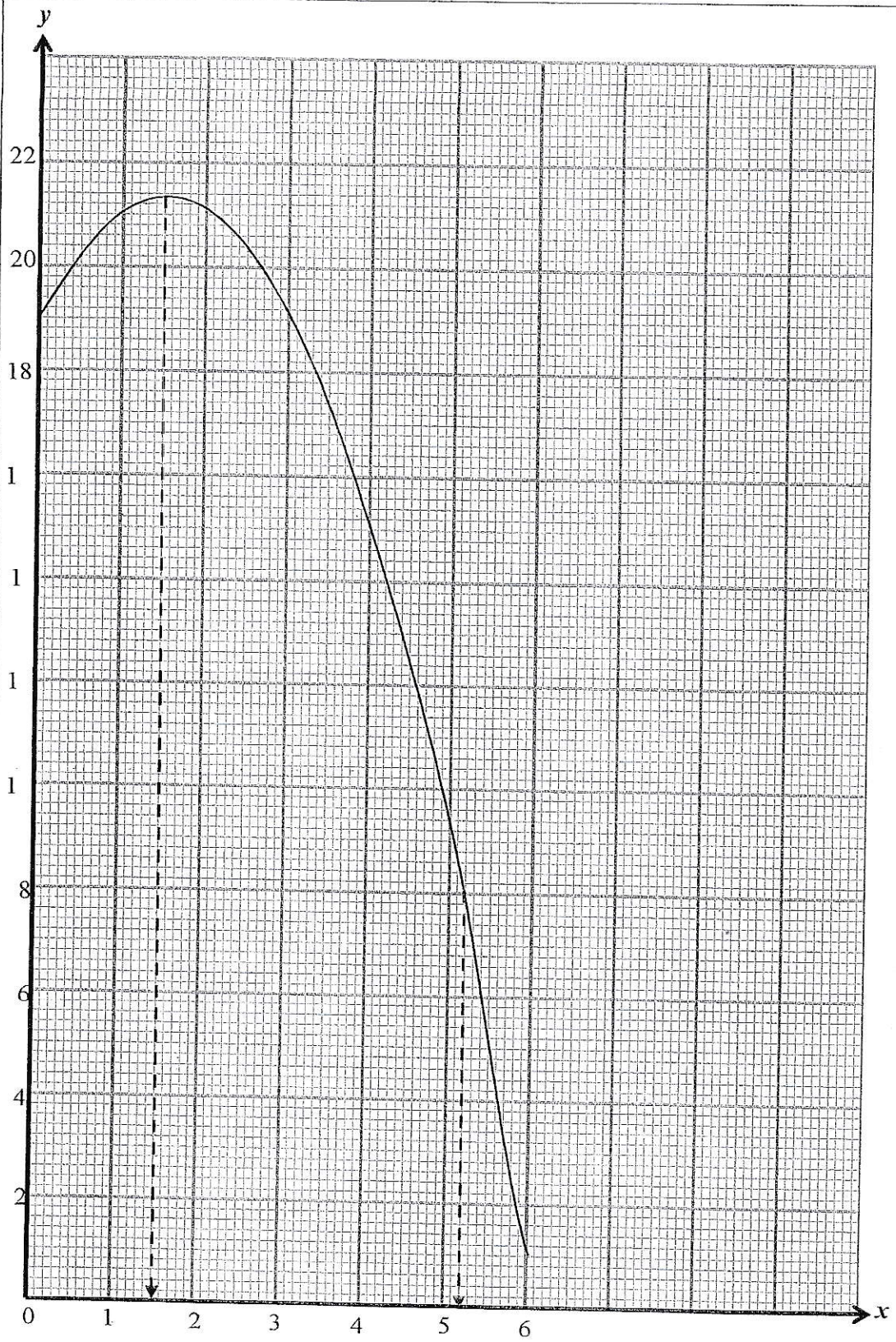
Peraturan pemarkahan ini mengandungi 10 halaman bercetak

No		Marks
1	(a)  (b)  <u>Note:</u> Region $Q \cup R'$ shaded correctly, award P1. 	P1 P2 3 marks
2	$16x - 6y = 40 \quad \text{or} \quad x = -6y - 23$ $17x = 17 \quad \text{or} \quad -\frac{51}{4}y = 51$ $x = 1$ $y = -4$	K1 K1 N1 N1 4 marks

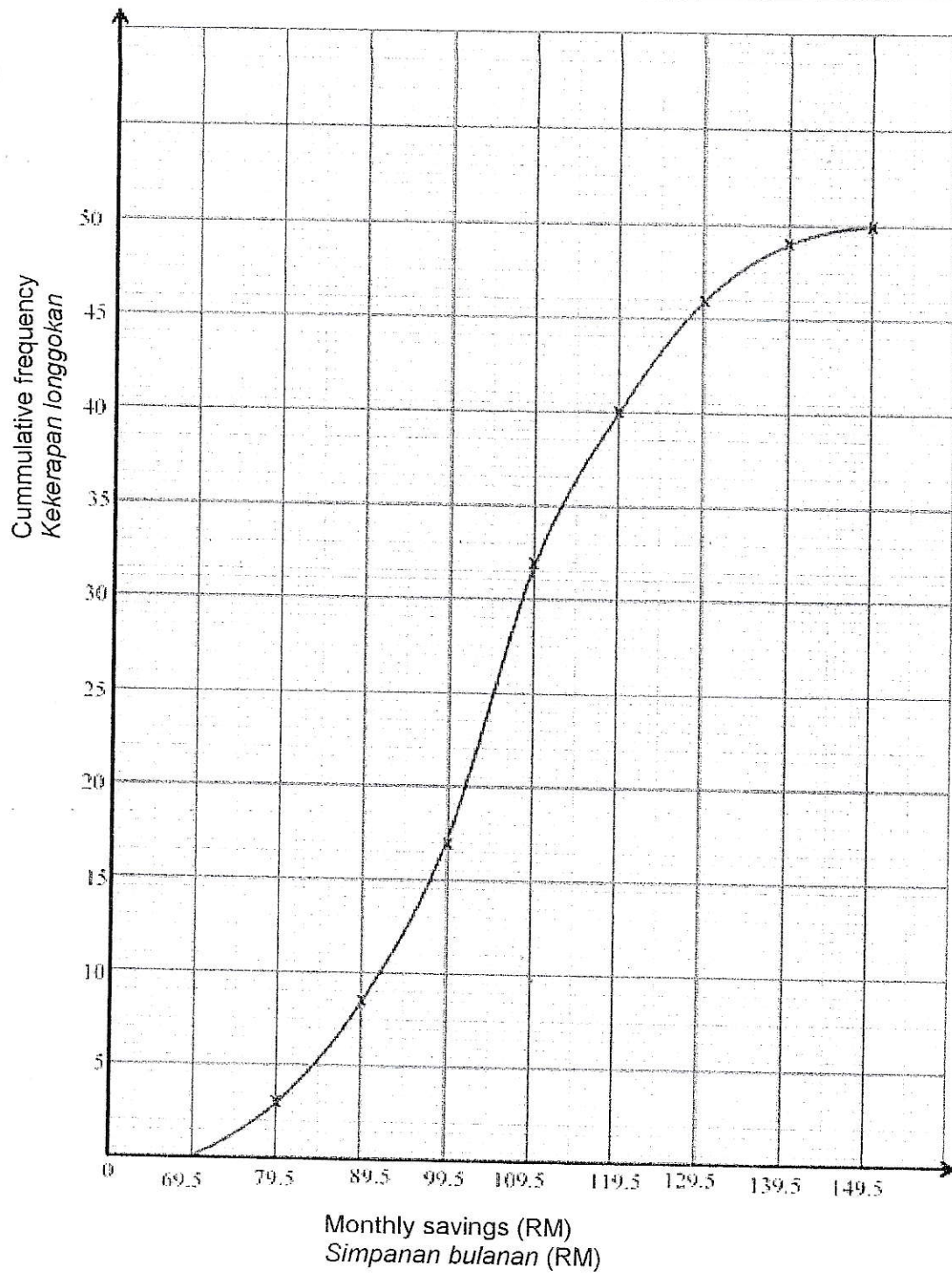
3	$\frac{1}{2}(x+2)(x+3) = 28$ $(x-5)(x+10) = 0$ $x = 5, \quad x = -10 \text{ (ignored)}$ $\text{Length of } MN = 13$	K1 K1 K1 N1
		4 marks
4	(a) $\angle RVW$ @ 4 WVR (b) $\tan \angle RVW = \frac{9}{7}$ $\angle RVW = 52.13^\circ$ or $52^\circ 8'$	P1 K1 N1
		3 marks
5	$\frac{1}{2}(5+3)(5)(5)$ $(5)(3)(7)$ $\frac{1}{2}(5+3)(5)(5) + (5)(3)(7)$ 205 cm^3	K1 K1 K1 N1
		4 marks
6	Non-statement / <i>Bukan Pernyataan.</i> $y = 5x + 7$ is a linear equation. $y = 5x + 7$ ialah persamaan linear. $2^4 = 16$	P1 P1 K1 N1
		4 marks
7	(a) $0 = -\frac{1}{2}x - 1$ $x\text{-intercept} = -2$ (b) $m = -\frac{1}{2}$ $1 = -\frac{1}{2}(6) + c$ or $c = 4$ $y = -\frac{1}{2}x + 4$ (c) $x = -2$	K1 N1 P1 K1 N1 P1
		6 marks

8	(a) 2	P1
	(b) $\frac{20-0}{4-0} = 5$	K1 N1
	(c) $\frac{1}{2}(2+6)(20)$ or $\frac{1}{2}(20+v)(4)$ or any correct geometric area $\frac{1}{2}(2+6)(20) + \frac{1}{2}(20+v)(4) = 18.4 \times 10$ $v = 32$	K1 K1 N1 6 marks
9	(a) $\frac{40}{360} \times 2 \times \frac{22}{7} \times 14$ or $\frac{140}{360} \times 2 \times \frac{22}{7} \times 28$ Perimeter = $\frac{40}{360} \times 2 \times \frac{22}{7} \times 14 + \frac{140}{360} \times 2 \times \frac{22}{7} \times 28 + 14 + 28 + 14$ $= 134\frac{2}{9} \text{ cm}$ @ 134.222 @ $\frac{1208}{9}$	K1 K1 N1
	(b) $\frac{40}{360} \times \frac{22}{7} \times 14^2$ or $\frac{140}{360} \times \frac{22}{7} \times 28^2$ or $\frac{140}{360} \times \frac{22}{7} \times 14^2$ Area of the shaded region $= \frac{40}{360} \times \frac{22}{7} \times 14^2 + \frac{140}{360} \times \frac{22}{7} \times 28^2 - \frac{140}{360} \times \frac{22}{7} \times 14^2$ $= 787\frac{1}{9} \text{ cm}^2$ @ 787.11 @ $\frac{7084}{9}$	K1 K1 N1 6 marks
10	(a) $9 - (-6x) = 0$ $x = -\frac{3}{2}$ @ -1.5	K1 N1
	(b) $\begin{pmatrix} 30 & 50 \\ 50 & 40 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 2190 \\ 2220 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{(30)(40) - (50)(50)} \begin{pmatrix} 40 & -50 \\ -50 & 30 \end{pmatrix} \begin{pmatrix} 2190 \\ 2220 \end{pmatrix}$ $x = 18$ $y = 33$ Final answer as $\begin{pmatrix} 18 \\ 33 \end{pmatrix}$, award N1.	P1 K1 N1 N1 6 marks

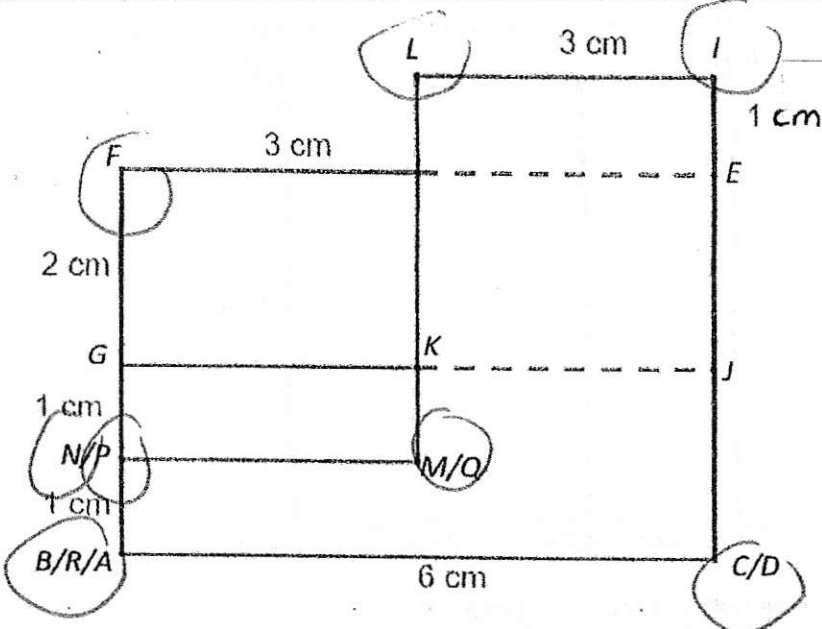
11	(a) (i) {(Chandra, Farah), (Chandra, Ani), (Farah, Chandra), (Farah, Ani), (Ani, Chandra), (Ani, Farah)} (ii) {(Chandra, Farah), (Chandra, Ani), (Farah, Chandra), (Ani, Chandra)} $\frac{4}{6}$ or $\frac{2}{3}$ (b) (i) {(Anuar, Ling), (Anuar, Susan), (Anuar, Nadia), (Anuar, Farah), (Anuar, Ani), (Tee, Ling), (Tee, Susan), (Tee, Nadia), (Tee, Farah), (Tee, Ani), (Chandra, Ling), (Chandra, Susan), (Chandra, Nadia), (Chandra, Farah), (Chandra, Ani)} (ii) {(Anuar, Ling), (Anuar, Susan), (Anuar, Nadia), (Tee, Ling), (Tee, Susan), (Tee, Nadia)} $\frac{6}{15}$ or $\frac{2}{5}$	P1 K1 N1 P1 K1 N1 6 marks						
12	(a) <table border="1" data-bbox="347 891 818 965"> <tr> <td>x</td><td>1</td><td>5</td></tr> <tr> <td>y</td><td>21</td><td>9</td></tr> </table> (b) Axes drawn in the correct directions with uniform scales for $0 \leq y \leq 21$ and $0 \leq x \leq 6$. All 5 points and *2 points correctly plotted. <u>Note:</u> 5 or 6 points plotted correctly, award K1. Smooth and continuous curve passing through all 7 correct points using the given scale for $0 \leq y \leq 21$. (c) (i) $x = 1.5$ Note: Accept $1.4 < x < 1.6$ (ii) $y = -(1.5^*)^2 + 5(1.5^*) + 19$ $= 21.25$ (d) $0 < x < 5.2$ Note: Accept $0 < x < 5.1$ or $0 < x < 5.3$	x	1	5	y	21	9	N1 N1 P1 K2 N1 P2 K1 N1 P2
x	1	5						
y	21	9						



12 marks

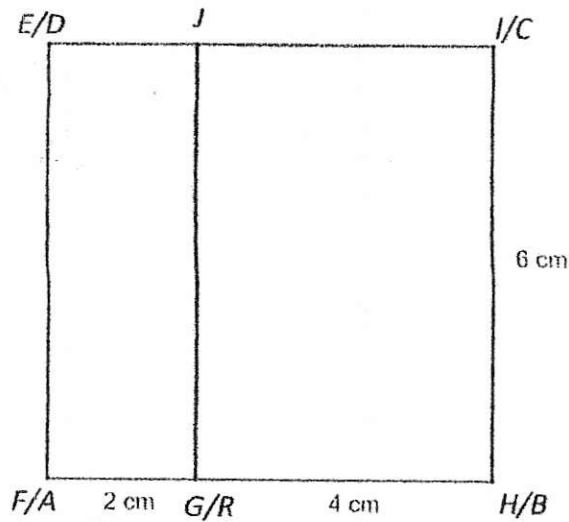


12 marks

	(ii)  Correct shape hexagon $BCILKG$ and rectangle $GNMK$. Note : Ignore dotted lines. Incur two dotted lines as shown in the diagram for hexagon $BCILKG$. $BC > CI > AF = LM > LI > BN = PG$. Correct measurement ± 0.2 cm (one way) and all angles at the vertices = $90^\circ \pm 1^\circ$.	K1 K1 K1 N2 12 marks
16	(a) (i) $P(0^\circ, 75^\circ \text{ E/T})$ (ii) 105° W/B (b) $(180^\circ - 20^\circ - 20^\circ) \times 60$ <u>or</u> $(140^\circ \times 60)$ 8400 (c) $(20^\circ \times 60)$ $180^\circ \times 60 \times \cos 20^\circ$ <u>Note :</u> Using $\cos 20^\circ$ correctly, award K1 $(20^\circ \times 60) + (180^\circ \times 60 \times \cos 20^\circ)$ 11349 (d) $\frac{*11349}{18}$ 630.5	P1 P1 P1 K1 N1 K1 K2 K1 N1 K1 N1 12 marks

15

(a)



Correct shape with all solid lines.

$EF = FH = GJ > HG > GF$

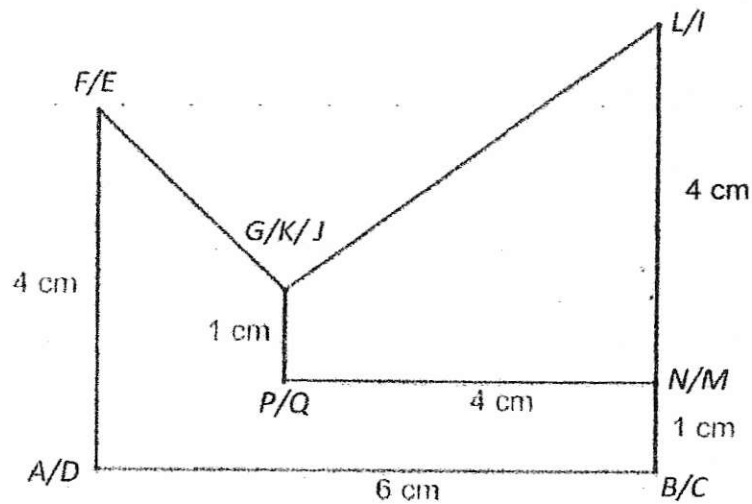
Correct measurement ± 0.2 cm (one way) and all angles at the vertices = $90^\circ \pm 1^\circ$.

K1

K1

N1

(b) (i)



Correct shape with all solid lines.

$AB > BL > ML = MP = AE > PG$

Correct measurement ± 0.2 cm (one way) and all angles at the vertices = $90^\circ \pm 1^\circ$.

K1

K1

N2