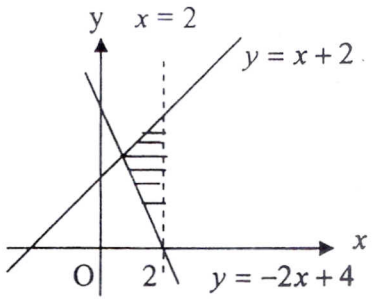
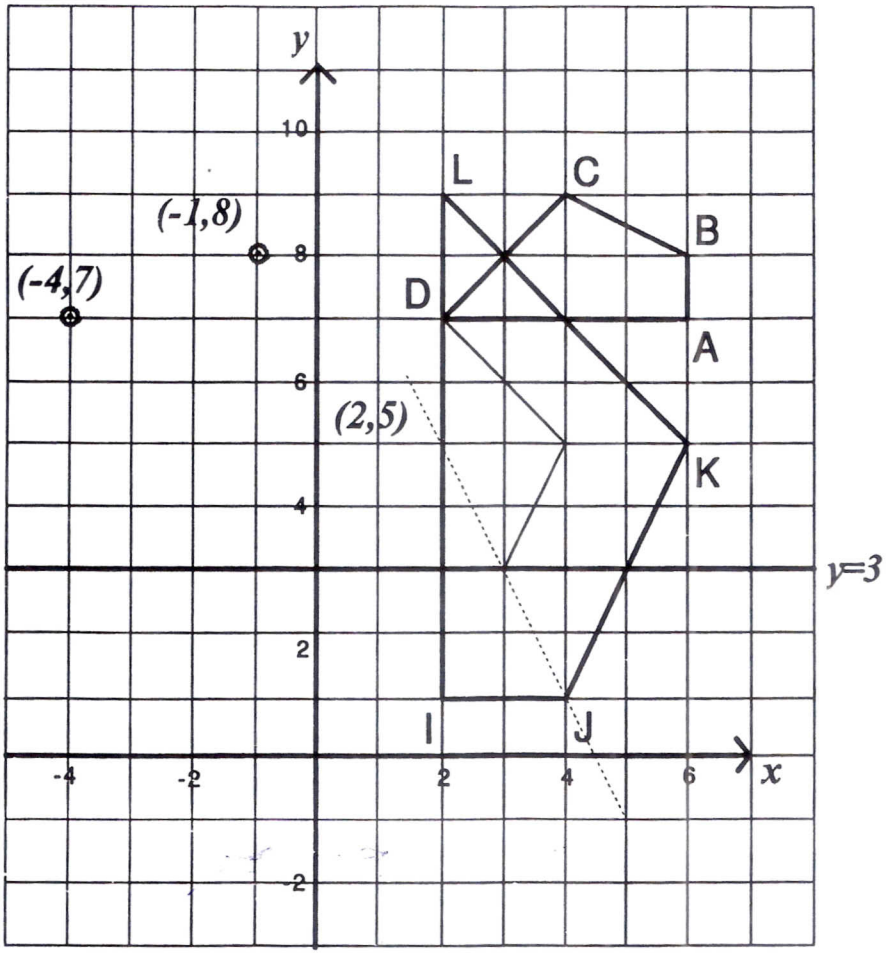
SKEMA PEMARKAHAN Maths paper 2 2009

Section A (52 marks)

1	 Line $x = 2$ is drawn correctly. Shaded region $y \le x+2$ or $y \ge -2x+4$ or x < 2correctly. Shaded the region which satisfies the three inequalities correctly.	1 1 1
2	$3h^2 - 14h - 5 = 0$ $(3h+1)(h-5) = 0$ $h = -\frac{1}{3}$, $h = 5$	1 1 1 1
3	(a) ∠BFC or ∠CFB (b) tan ∠BFC $= \frac{9}{8}$ $\angle BFC = 48.37° / 48°22'$	1 1 1 1
4	$m - 6n = 20$ $6m = 12$ $m = 2$ $n = -3$ (Terima kaedah matriks atau kaedah gantian)	1 1 1 1
5	(a) $\frac{1}{2}(6+10)(r)(12) = 672$ atau setara r = 7cm (b) $\frac{1}{4}\left(\frac{22}{7}\right)(7^2)(12)$	1 1 1
	$= 462\text{cm}^3$	1
6	(a) antecedent: A polygon has 5 sides. Consequent: The polygon is a pentagon. (b) If the lines $y = 2x+6$ and $y = mx+10$ are parallel, then m = 2. (c) $1+4n^2$, where n = 1, 2, 3, …	1 1 1 1 1
7	(a) A = {(K, L), (K, M), (K, N)} n(sample space) = 4 × 5 = 20 $P(A) = \left(\frac{1}{4}\right)\left(\frac{3}{5}\right)$ or $P(A) = \frac{n(A)}{n(S)} = \frac{3}{20}$ (b) B = {(K, 2), (K, 9), (3, L), (3, M), (3, N), (8, L), (8, M), (8, N), (4, L), (4, M), (4, N)} $P(B) = \left(\frac{3}{4}\right)\left(\frac{3}{5}\right) + \left(\frac{2}{5}\right)\left(\frac{1}{4}\right)$ or $P(B) = \frac{11}{20}$	1 1 1 1 1
8	(a) $\frac{1}{4}(2)(\frac{22}{7})(14)$ or $\frac{1}{2}(2)(\frac{22}{7})(7)$ Perimeter of the whole diagram $= 14 + \frac{1}{4}(2)(\frac{22}{7})(14) + \frac{1}{2}(2)(\frac{22}{7})(7)$ or 14 + 22 + 22 = 58cm (b) $\frac{1}{4}(\frac{22}{7})(14^2)$ or $\frac{120}{360}(\frac{22}{7})(7^2)$ Area of the shaded region	1 1 1 1

	$= \frac{1}{4}(\frac{22}{7})(14^2) - \frac{120}{360}(\frac{22}{7})(7^2)$ or $154 - 51\frac{1}{3}$	1
	$= 102\frac{2}{3}\text{cm}^3$	1
9	(a) $\frac{250km}{6h}$	1
	$41\frac{2}{3}kmh^{-1}$	1
	(b) uniform speed $= \frac{250}{5} = 50kmh^{-1}$	1
	$\frac{250-150}{t} = 50$	1
	$t = 2$	1
10	(a) x-intercept $= -3$	1
	(b) $\frac{2+2}{3-k} = -2$	1
	$k = 5$	1
	(c) m = 2	1
	$y = 2x - 4$	1
11	(a) $r = -\frac{5}{2}$	1
	(b) $G^{-1} = -\frac{1}{2}\begin{pmatrix} -2 & 2 \\ -4 & 5 \end{pmatrix}$	1
	$= \begin{pmatrix} 1 & -1 \\ 2 & -\frac{5}{2} \end{pmatrix}$	1
	(c) $\begin{pmatrix} v \\ w \end{pmatrix} = -\frac{1}{2}\begin{pmatrix} -2 & 2 \\ -4 & 5 \end{pmatrix}\begin{pmatrix} 1 \\ 2 \end{pmatrix}$	1
	$= \begin{pmatrix} -1 \\ -3 \end{pmatrix}$	1
	$v = -1,$ $w = -3$	1 1

12



a) (i) M : (-1,4) M : (-4,7) ----1, 1
(ii) N : (2,5) M : (-1,8) ----1, 1

b) (i) Y : clockwise rotation of 90° about the centre (2, 7). ----1, 1, 1
(ii) W : an enlargement with scale factor of 2 about centre (2, 5) ----1, 1, 1

c)

$$\frac{120}{\text{Area of ABCD}} = 2^2 \qquad \text{-----1}$$

$$= 30 \text{ cm}^2 \qquad \text{------1}$$

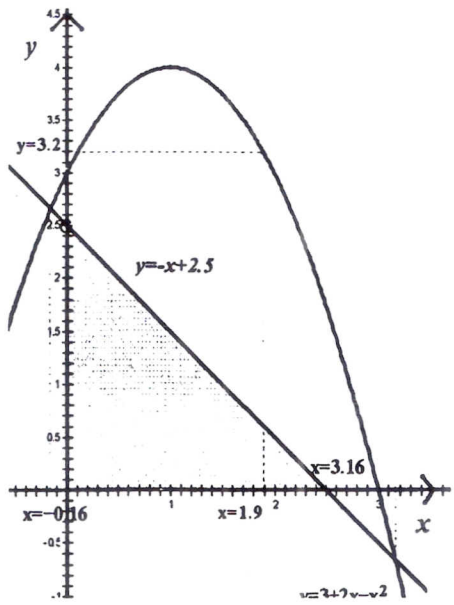
12

13) a)

x	0	1
y	3	4

--------1, 1

b)



- Axes are drawn in the right directions with uniform scales in the domain $-0.5 \le x \le 3.2$ and $-0.85 \le y \le 4$ ------1

  * plot 9 points correctly ------2
    (note: plot 8 or 7 points correctly , 1 mark)
  * Smooth, continuous curve and passing through all the 9 points. -----1

c) $3.10 \le y \le 3.3$ ------1

d) $y = -x + 2.5$ -------1
Graf $y = -x + 2.5$ drawn at the right position on the graph -------1

Based on the graph, $3.10 \le x \le 3.20$ -------1
$-0.20 \le x \le -0.10$ -------1

e) Refer to the shaded region above. -------1
12

14 (a)

Class interval *Selang kelas*	Frequency *Kekerapan*	Midpoint Titik tengah
20-24	2	22
25-29	5	27
30-34	7	32
35-39	10	37
40-44	4	42
45-49	6	47
50-54	3	52
55-59	3	57

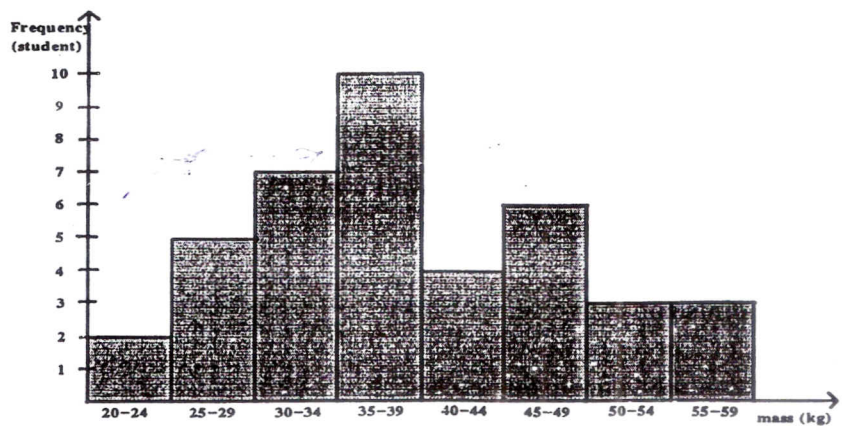
All class intervals correct -------1
All 8 frequencies correct -------2
(note : 7 or 6 frequencies correct , 1 mark)
All midpoints correct -------1

b) $\text{mean} = \dfrac{2(22)+5(27)+7(32)+10(37)+4(42)+6(47)+3(52)+3(57)}{40}$ ------1

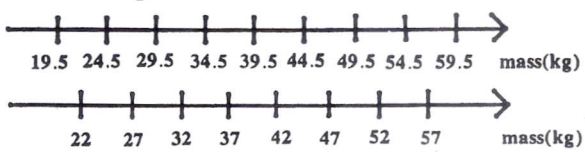
$= \dfrac{1550}{40}$ ------1

$= 39.13$ kg 38.75 -------1

c) Histogram:



* Vertical axis is marked uniformly in the range $0 \le y \le 10$. -------1
* Horizontal axis represent the class intervals or class boundary or mid points -------1

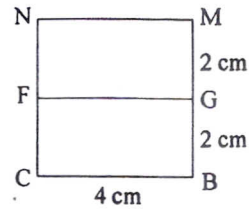


*All 8 rectangles of similar width are correctly constructed --------2

d) Modal class is (35-39) kg --------1

15 (a) **Elevation X:**
The shape must be right with the square and rectangles. All lines must be fully drawn.

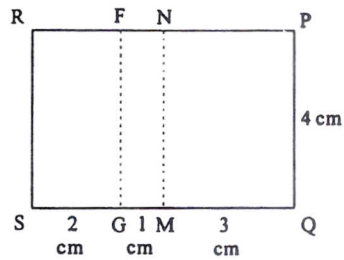
3



Measurement must be accurate to ± 0.2 cm and all angles at rectangle vertex = 90° ± 1

b (i) **Plan:**
The shape must be right with the rectangles. All lines included the dotted lines must be shown completely.

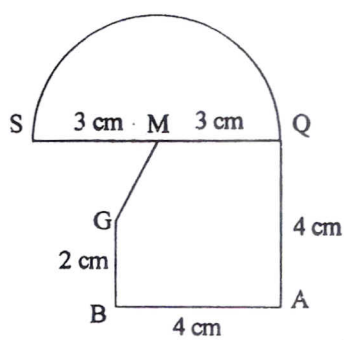
5



Measurement must be accurate to ± 0.2 cm and all angles at rectangle vertex = 90° ± 1

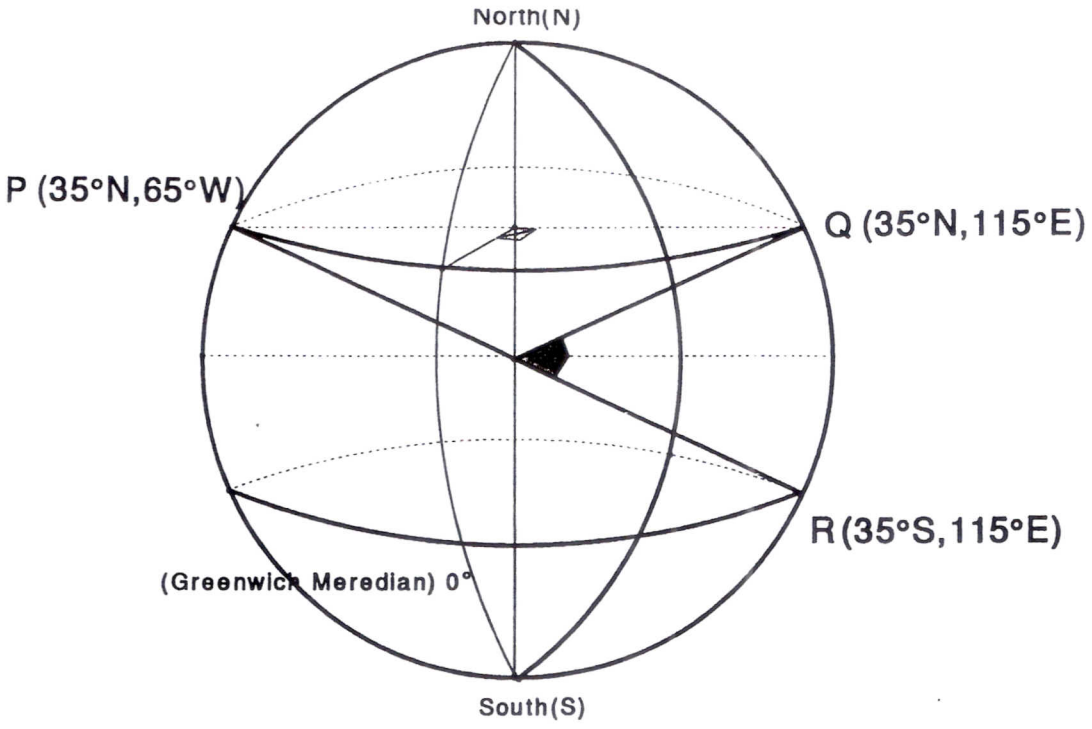
b (ii) **Elevation Y:**
The shape must be right included with the semi circle. All lines must be fully drawn.

4



Measurement must be accurate to ± 0.2 cm and all angles at rectangle vertex = 90° ± 1

12



a) 115°E ——(1)

b) (i) Q (35°N, 115°E) ——(2)

(ii) Shortest distance of PQ
= 110° X 60 ——(1)
= 6600 n.m ——(1)

c) (i) Distance PQ = 180°X60Xcos35° ——(1)
= 8846.84 n.m ——(1)

(ii) The whole distance = 8846.84 + (70X60) ——(1)
= 13046.84 ——(2)

$$\text{Time taken} = \frac{13046.84 \text{ n.m}}{750 \text{ knots}}$$ ——(1)

= 17.40 hours ——(1)

12