Modul Pintas Tingkatan 5

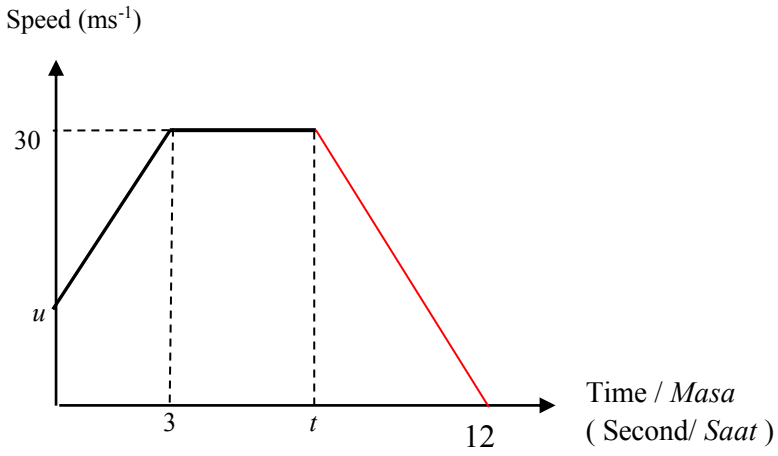
Peperiksaan Percubaan SPM 2018

Skema Jawapan Matematik

Kertas 2 1449/2

No	Marking Scheme / Skema markah	Marks	
		Submarks	Total Marks
1	$y \geq 3 - x$ $x < 3$ $y < 3$	1 mark 1 mark 1 mark	3 marks
2	(*a*) $\angle AFB$ or $\angle BFA$ or $\angle DEC$ or $\angle CED$ (*b*) $\angle AFB = 2\,sin^{-1}\frac{150}{200}$ $= 97{\cdot}18^\circ$ or $97^\circ 11'$	1 mark 1 mark 1 mark	3 marks
3	$60 \times 40 \times 100$ $\frac{240000}{8000}$ $30 \times$ RM2·50 or RM75 RM25	1 mark 1 mark 1 mark 1 mark	4 marks
4	$x - 20 = y + 20$ or equivalent $x + 22 = 2(y - 22)$ or equivalent $x = y + 40$ or $y = x - 40$ or $x = 2y - 66$ or $y = x - 40$ or $y = \frac{x-66}{x}$ Amelia, x = RM146 or Bala, y = RM106 RM252	1 mark 1 mark 1 mark 1 mark 1 mark	5 marks
5.	(*a*) False / *Palsu* (*b*) Premise 1: If the length of a side of an equilateral triangle is 8 cm, then the perimeter of the triangle is 24 cm *Premis* 1: *Jika panjang sisi suatu segi tiga sama ialah* 8 cm, *maka perimeter bagi segi tiga itu ialah* 24 cm. (*c*) $n^2 + 2n$, $n = 1, 2, 3, 4, \ldots$ Accept $n^2 + 2n$ for 1 mark	1 mark 2 marks 2 marks	5 marks
6.	(*a*) $x - 2 = \frac{9x + 6}{x + 2}$ $x^2 - 9x - 10 = 0$ (*b*) $(x - 10)(x + 1) = 0$ 96	1 mark 1 mark 1 mark 1 mark	4 marks
7.	(*a*) $e + b = 96$ $0{\cdot}55e + 2{\cdot}21b = 117{\cdot}54$	1 mark 1 mark	5 marks
	(*b*) $\begin{pmatrix} 1 & 1 \\ 0.55 & 2.21 \end{pmatrix}\begin{pmatrix} e \\ b \end{pmatrix} = \begin{pmatrix} 96 \\ 117{\cdot}54 \end{pmatrix}$ $\begin{pmatrix} e \\ b \end{pmatrix} = \frac{1}{(1)(2{\cdot}21) - (1)(0{\cdot}55)}\begin{pmatrix} 2{\cdot}21 & -1 \\ -0.55 & 1 \end{pmatrix}\begin{pmatrix} 96 \\ 117{\cdot}54 \end{pmatrix}$ $e = 57$ $b = 39$	1 mark 1 mark 1 mark	

No	Marking Scheme / Skema markah	Marks	
		Submarks	Total Marks
8.	(*a*) (–4, 5)	1 mark	5 marks
	(*b*) $m_{OQ} = \frac{5-0}{4-0} = \frac{5}{4}$	1 mark	
	$y = \frac{5}{4}x + c$	1 mark	
	$5 = \frac{5}{4}(-4) + c$	1 mark	
	$y = \frac{5}{4}x + 10$ or $4y = 5x + 40$ or equivalent.	1 mark	
9	(*a*) {(1, A), (2, A), (3, A), (4, A), (5, A), (6, A), (1, B), (2, B), (3, B), (4, B), (5, B), (6, B), (1, C), (2, C), (3, C), (4, C), (5, C), (6, C)} Allow 2 mistakes for 1 mark	2 marks	6 marks
	(*b*) (i) {(4, A), (4, B), (4, C)}	1 mark	
	$\frac{3}{18} = \frac{1}{6}$	1 mark	
	(ii) {(2, *B*), (2, *C*), (3, *B*), (3, *C*), (5, *B*), (5, *C*)}	1 mark	
	$\frac{6}{18} = \frac{1}{3}$	1 mark	
10	(*a*) $\left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 7$ or $\left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 5$ or $\left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 3$ or $\left(\frac{120}{360}\right)\times 2\times\frac{22}{7}\times 5$ or $\left(\frac{120}{360}\right)\times 2\times\frac{22}{7}\times 3$ or $2\times\frac{22}{7}\times 5$ or $2\times\frac{22}{7}\times 3$	1 mark	6 marks
	$\left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 7 + \left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 5 + \left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 3 + \left(\frac{120}{360}\right)\times 2\times\frac{22}{7}\times 5 + \left(\frac{120}{360}\right)\times 2\times\frac{22}{7}\times 3 + (4\times 2) + (2\times 3)$ or equivalent OR $\left(\frac{240}{360}\right)\times 2\times\frac{22}{7}\times 7 + (2\times\frac{22}{7}\times 5) + (2\times\frac{22}{7}\times 3) + (4\times 2) + (7) + (7)$	1 mark	
	$93\frac{13}{21}$ or $\frac{1966}{21}$ or 93.62	1 mark	
	(*b*) $\frac{22}{7}\times 5^2$ or $\left(\frac{270}{360}\right)\times 2^2$ or (7×7) or (4×4) or (2×2)	1 mark	
	$\frac{22}{7}\times 5^2 - (7\times 7) + (4\times 4) + \left(\frac{270}{360}\right)\times 2^2 + (2\times 2)$	1 mark	
	$40\frac{1}{7}$ or $\frac{281}{7}$ or 40 ·14	1 mark	

No	Marking Scheme / Skema markah	Marks	
		Submarks	Total Marks
11	(*a*)  	2 marks	6 marks
	(*b*) $\frac{30-u}{3}=6$	1 mark	
	12	1 mark	
	(*c*) $(t-3)(30)+\frac{1}{2}(12-t)(30)=180$	1 mark	
	$t=6$	1 mark	
12.	(*a*) x | -3 | 2 y | 12 | -18	1 mark 1 mark	12 marks
	(*b*) Graph Axes are drawn in the correct direction, uniform scale for $-4 \le x \le 4$ and $-36 \le y \le 36$.	1 mark 2 marks	
	7 points and 2 points* plotted accurately	1 mark	
	Smooth and continuous curve without straight line(s) and passes through all the 9 correct points $-4 \le x \le 4$ and $-36 \le y \le 36$.		
	Notes : (1) 7 or 8 points plotted correctly, award 1 mark (2) Other scale being used, subtract 1 mark	1 mark 1 mark	
	(*c*) $12 \le y \le 14$ $1{\cdot}3 \le x \le 1{\cdot}5$ Note: Do not accept the values of x and y obtained by calculation	2 marks 1 mark	
	(*d*) Identify the equation $y=-3x+2$ correctly drawn $-3{\cdot}05 \le x \le -3{\cdot}25$ $3{\cdot}65 \le x \le 3{\cdot}85$	1 mark	

<table>
<tr><th>No</th><th>Marking Scheme / Skema markah</th><th colspan="2">Marks</th></tr>
<tr><th></th><th></th><th>Submarks</th><th>Total Marks</th></tr>
<tr><td>13</td><td>(a) (i) (4, − 9)
(ii) (3,−1)

(b) (i) (a) V is Rotation 90˚clockwise about the centre (2, −2)
V ialah putaran 90˚ ikut arah jam pada pusat (2, −2)

(b) W ia an enlargement with a scale factor 2 and centre L (2, 1).
W ialah pembesaran, faktor skala 2 pada pusat L (2, 1)

(ii) Area of image = 2^2 × area of object
Area of shaded region = area of image – area of object =
$84 = 2^2 \times$ area of object – area of object
area of object = $\frac{84}{3}$
= 28</td><td>2 marks
2 marks

2 marks

3 marks

2 marks

1 mark</td><td>12 marks</td></tr>
<tr><td>14</td><td>(a)

Column I Column II Column III Column IV
<table><tr><th>Mass (kg)
Jisim (kg)</th><th>Upper boundry
Sempadan atas</th><th>Frequency
Kekerapan</th><th>Cummulative Frequency</th></tr><tr><td>0 – 0·9</td><td>0·95</td><td>0</td><td>0</td></tr><tr><td>1·0– 1·9</td><td>1·95</td><td>4</td><td>4</td></tr><tr><td>2·0 – 2·9</td><td>2·95</td><td>10</td><td>14</td></tr><tr><td>3·0– 3·9</td><td>3·95</td><td>26</td><td>40</td></tr><tr><td>4·0– 4·9</td><td>4·95</td><td>24</td><td>64</td></tr><tr><td>5·0 – 5·9</td><td>5·95</td><td>17</td><td>81</td></tr><tr><td>6·0 – 6·9</td><td>6·95</td><td>12</td><td>93</td></tr><tr><td>7·0 – 7·9</td><td>7·95</td><td>7</td><td>100</td></tr></table></td><td>Column I
1 mark

Column II
1 mark

Column II
1 mark

Column II
1 mark</td><td rowspan="4">12 marks</td></tr>
<tr><td></td><td>(b)
$\frac{1\cdot45(4)+2\cdot45(10)+3\cdot45(26)+4\cdot45(24)+5\cdot45(17)+6\cdot45(12)+7\cdot45(7)}{100}$

4·49 or equivalent</td><td>2 marks

1 mark</td></tr>
<tr><td></td><td>(c) Axes are drawn in the correct direction, uniform scale for
0 ≤ vertical axis ≤ 100 and 0·95 ≤ horizontal axis ≤ 7·95

All points plotted accurately.

Smooth and continuous curve.</td><td>1 mark

2 marks

1 mark</td></tr>
<tr><td></td><td>(d) 100 – 66 = 34</td><td>1 mark</td></tr>
</table>

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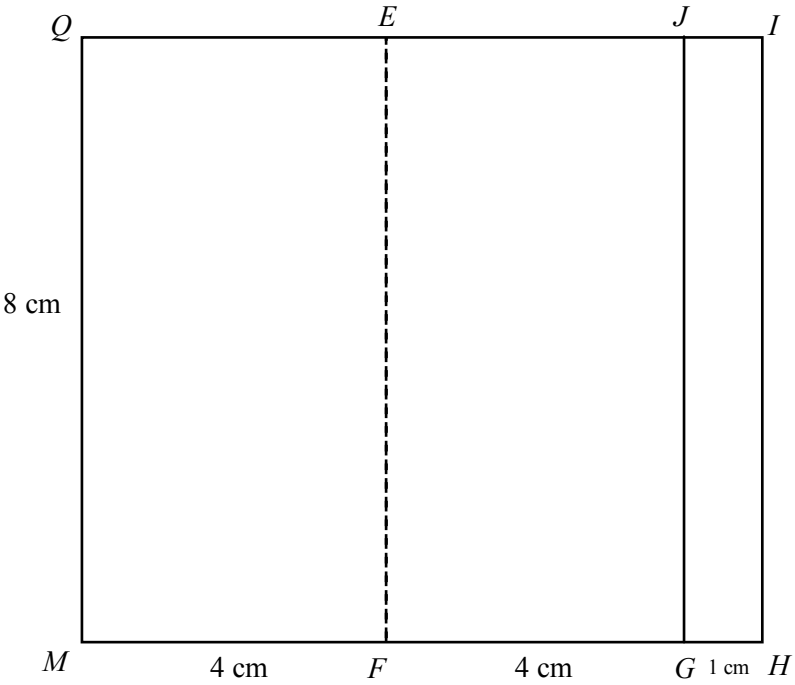
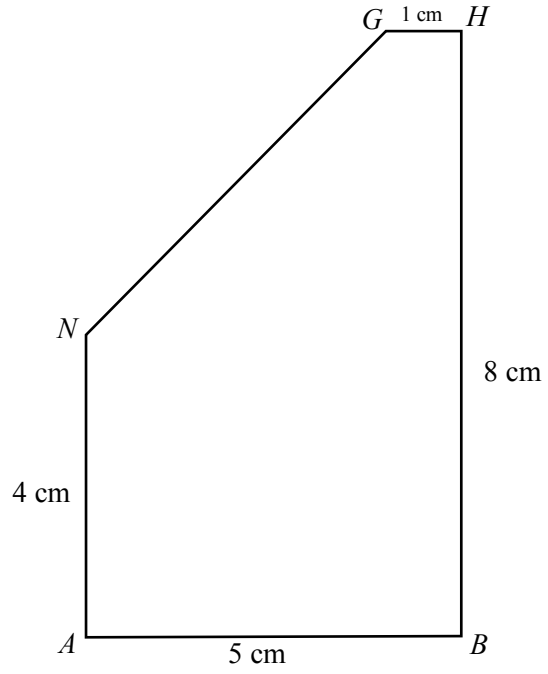
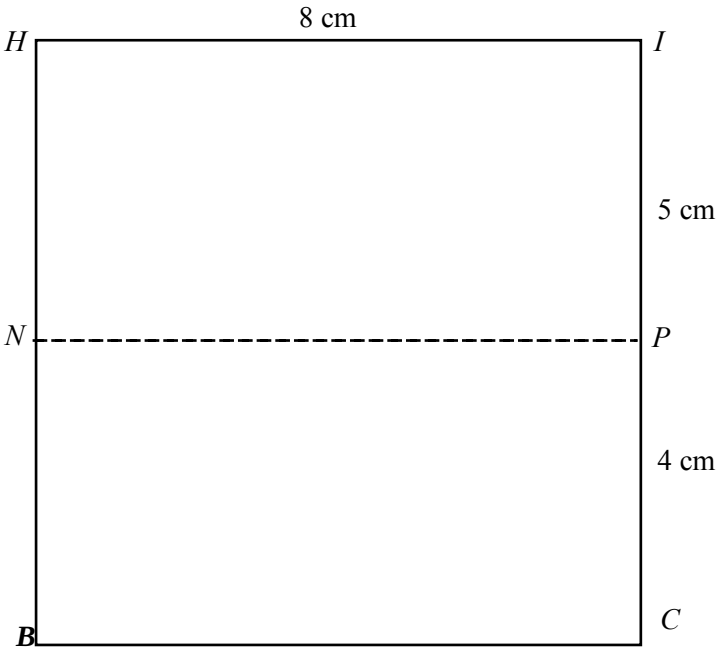
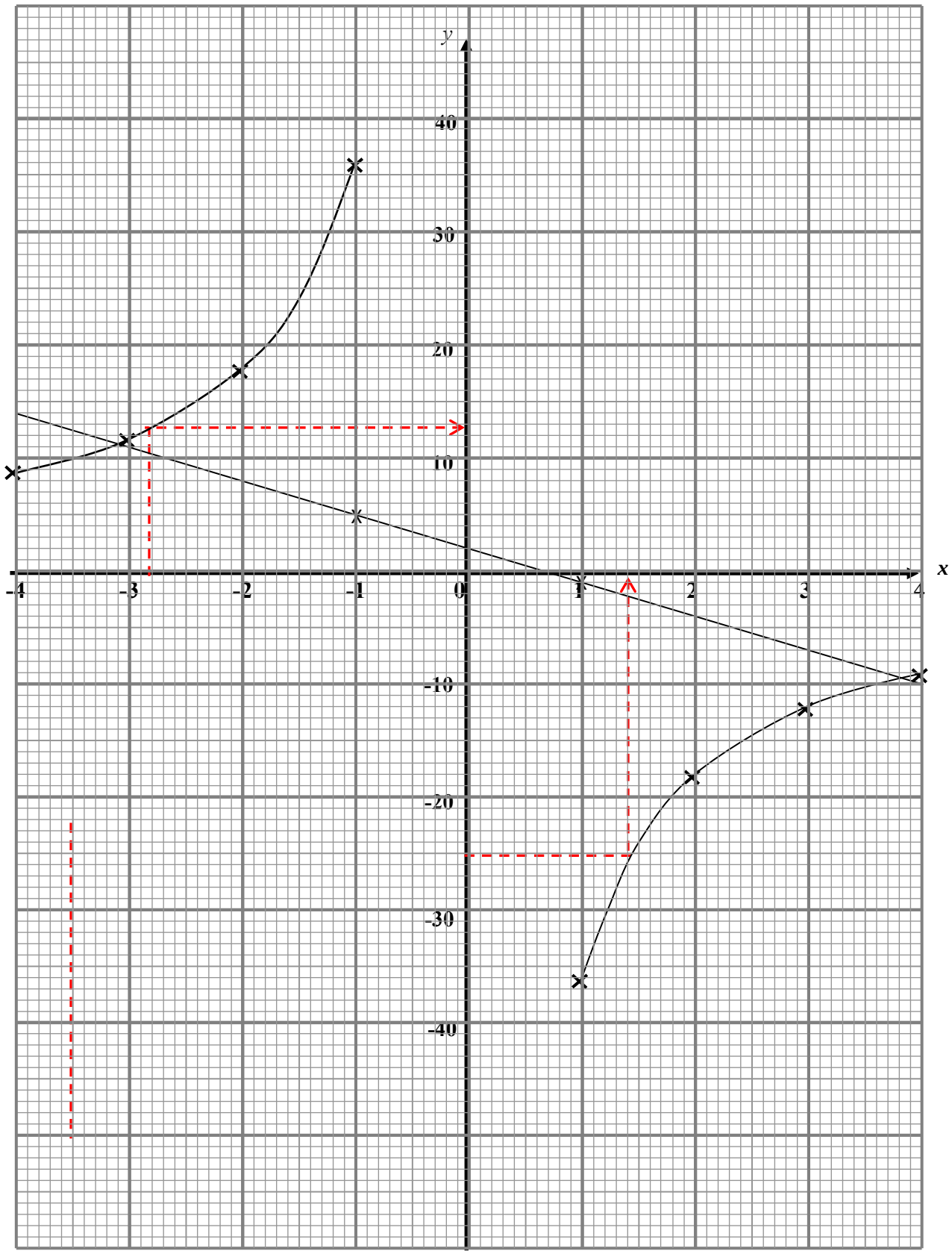
		Submarks	Total Marks
15	(*a*)  		
	Correct shape rectangles *QKLM*, *KJGL* and *JIHG*.	1 mark	
	K – L is joined by a dashed line.	1 mark	
	QI > *IH* > *QK* = *KJ* > *JI*	1 mark	
	Measurements accurate up to ± 0·2 cm (one way) and all right angles = 90° ± 1°	2 marks	12 marks
15	(*b*)(i)  		
	Correct shape pentagon *ABHGN*.	1 mark	
	BH > *AB* > *AN* > *GH*	1 mark	
	Measurements accurate up to ± 0·2 cm (one way) and all right angles =	1 mark	

No	Marking Scheme / Skema markah	Marks	
		Submarks	Total Marks
	$90^o \pm 1^o$		
15	(*b*)(ii)  		
	Correct shape rectangles *NIPN and BCPN*.	1 mark	
	N – *P* is joined by a dashed line.	1 mark	
	$BH = BC > BN = NH$	1 mark	
	Measurements accurate up to ± 0·2 cm (one way) and all right angles = $90^o \pm 1^o$	1 mark	
16	(a) 120° W/ *B* Note: Award 1 mark for 120° or $\theta°$ W / *B* is seen	2 marks	
	(b) (45 °S, 60° W / *B*) Award 2 marks for (θ °S, 60° W / *B*) Award 1 mark for (θ °N, 60° W / *B*)	3 marks	
	(c) $(180° – 45° – 45°) \times 60$ or $2\,(90° – 45°) \times 60$ or equivalent	1 mark	
	5400 nautical miles	1 mark	
	(d) $120° \times 60 \times \cos 45°$	1 mark	
	$(45° + 45°) \times 60$	1 mark	
	$\dfrac{(120 \times 60 \times \cos 45) + (90 \times 60)}{18}$	2 marks	
	582·84	1 mark	

Graph for Question 12
Graf untuk Soalan 12



Graph for Question 14

Graf untuk Soalan 14