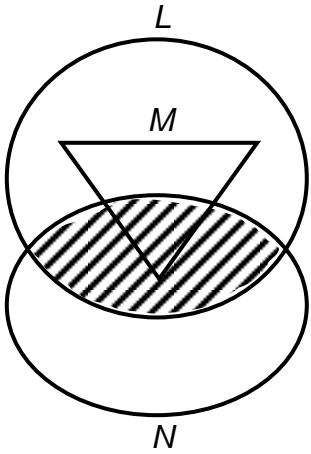
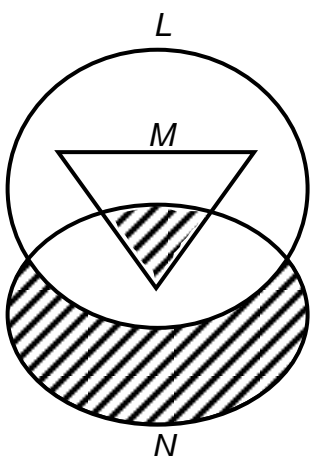


**SKEMA PEMARKAHAN**  
**PENILAIAN PERCUBAAN SPM NEGERI PAHANG 2017**  
**MATHEMATICS 1449/2**

<b>SECTION A [52 MARKS]</b>			
<b>Question</b>	<b>Mark Scheme</b>	<b>Sub Mark</b>	<b>Total Mark</b>
1	<p>(a)</p>  <p style="text-align: center;"><math>L</math></p> <p style="text-align: center;"><math>M</math></p> <p style="text-align: center;"><math>N</math></p>	1	
	<p>(b)</p>  <p style="text-align: center;"><math>L</math></p> <p style="text-align: center;"><math>M</math></p> <p style="text-align: center;"><math>N</math></p>	2	
	<p><u>Note</u> : <math>(M \cap N)</math> is correctly shaded award K1.</p>		
			<b>3</b>

2	$x^2 - 8x - 273 = 0$ $(x-21)(x+13) = 0$ $x = 21 \text{ or } x = -13$ <p><math>\therefore</math> The length of the paper = 21 cm</p>	1 1 1 1	4
3	<p>Volume of cone = <math>\frac{1}{3} \times \frac{22}{7} \times 14^2 \times 48 \times \frac{3}{4}</math></p> $\frac{7392}{6} \text{ or } 1232$ $\frac{22}{7} \times 7^2 \times t = 1232$ <p>8 cm</p>	1 1 1 1	4
4	$y = 3x \quad \text{or} \quad x + y = 60$ $4x = 60$ <p><u>OR</u></p> $\begin{pmatrix} 3 & -1 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 0 \\ 60 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{3(1) - (-1)(1)} \begin{pmatrix} 1 & 1 \\ -1 & 3 \end{pmatrix} \begin{pmatrix} 0 \\ 60 \end{pmatrix} \quad (2)$ $x = 15$ $y = 45$ <p>Note : <math>\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 15 \\ 45 \end{pmatrix}</math> award 1 mark</p>	1 1  1 1	4

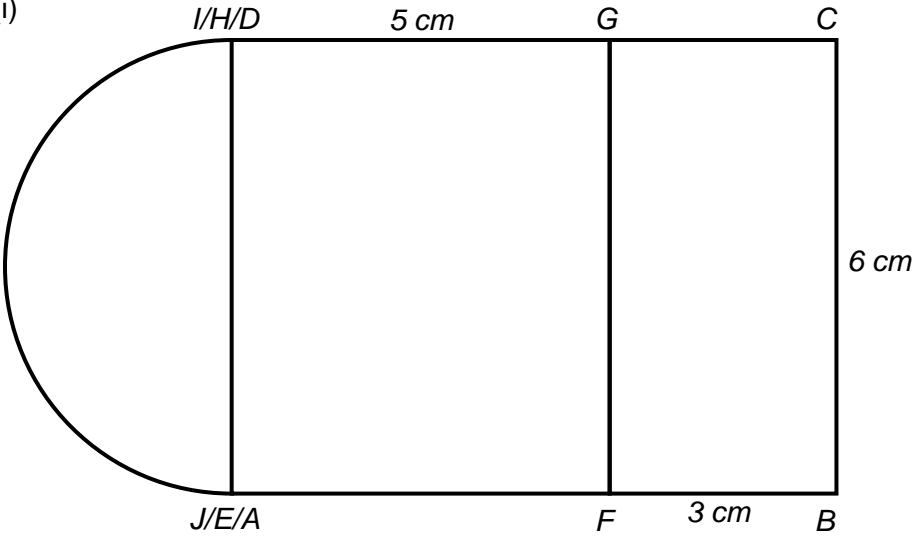
5	<p>(a) Palsu / <i>False</i></p> <p>(b) Jika <math>x^2 - 1 = 8</math>, maka <math>x = 3</math> / <i>If <math>x^2 - 1 = 8</math>, then <math>x = 3</math></i> Palsu / <i>False</i></p> <p>(c) Sudut pedalamannya bukan <math>108^\circ</math>. / <i>The interior angle is not <math>108^\circ</math>.</i></p> <p>(d) <math>(4 \times n^2) - n</math>, <math>n = 1, 2, 3, 4, \dots</math></p>	1 1 1 1,1	<b>6</b>
6	<p>(a) <math>\angle FAG</math></p> <p>(b) <math>\tan \angle FAG = \frac{180}{250}</math> <i>or equivalent</i>  <math>35.75^\circ</math> or <math>35^\circ 45'</math></p>	1 1 1	<b>3</b>
7	<p>(a) <math>\frac{270}{360} \times 2 \times \frac{22}{7} \times 21</math> or <math>\frac{270}{360} \times 2 \times \frac{22}{7} \times 9</math></p> <p><math>[\frac{270}{360} \times 2 \times \frac{22}{7} \times 21] + 12 + [\frac{270}{360} \times 2 \times \frac{22}{7} \times 9] + 12</math></p> <p><math>165\frac{3}{7}</math> or 165.43 or <math>\frac{1158}{7}</math></p> <p>(b) <math>\frac{270}{360} \times \frac{22}{7} \times 21^2</math> or <math>\frac{270}{360} \times \frac{22}{7} \times 9^2</math></p> <p><math>[\frac{270}{360} \times \frac{22}{7} \times 21^2] - [\frac{270}{360} \times \frac{22}{7} \times 9^2]</math></p> <p><math>848\frac{4}{7}</math> or 848.57 or <math>\frac{5940}{7}</math></p>	1 1 1 1 1	<b>6</b>

8	<p>(a) (A,N) (A,D) (A,S) (A,H)  (C,N) (C,D) (C,S) (C,H)  (K,N) (K,D) (K,S) (K,H)  (F,N) (F,D) (F,S) (F,H)</p> <p>(b) (i) (A,H) (C,H)  <math>\frac{2}{16}</math> or <math>\frac{1}{8}</math></p> <p>(ii) (A,N) (A,D) (A,S) (C,N) (C,D) (C,S) (K,H) (F,H)  <math>\frac{8}{16}</math> or <math>\frac{1}{2}</math></p>	2  1  1  1  1	<b>6</b>
9	<p>(a) <math>y = 10</math></p> <p>(b) <math>y = \frac{5}{3}x + c</math>   <math>10 = \frac{5}{3}(9) + c</math>   <math>y = \frac{5}{3}x - 5</math></p> <p>(c) Pintasan-y / y-intercept = -5</p>	1  1  1  1  1	<b>5</b>

10	<p>(a) <math>250A + 320B = 21600</math>  <math>280A + 310B = 22740</math></p> <p>(b) <math display="block">\begin{pmatrix} 250 &amp; 320 \\ 280 &amp; 310 \end{pmatrix} \begin{pmatrix} A \\ B \end{pmatrix} = \begin{pmatrix} 21600 \\ 22740 \end{pmatrix}</math></p> $\begin{pmatrix} A \\ B \end{pmatrix} = \frac{1}{(250)(310) - (320)(280)} \begin{pmatrix} 310 & -320 \\ -280 & 250 \end{pmatrix} \begin{pmatrix} 21600 \\ 22740 \end{pmatrix}$ <p>Grade A = RM48  Grade B = RM30</p> <p>Note : <math>\begin{pmatrix} 48 \\ 30 \end{pmatrix}</math> award 1 mark</p>	1  1  1  1  1	5
11	<p>(a) 17 minutes</p> <p>(b) <math>\frac{28 - 12}{8}</math>  2</p> <p>(c) <math>[\frac{1}{2} \times (12 + 28) \times 8] + [17 \times 28] + [\frac{1}{2} \times (28 + V) \times 15] = 1116</math>  <math>V = 36</math></p>	1  1  1  2  1	6

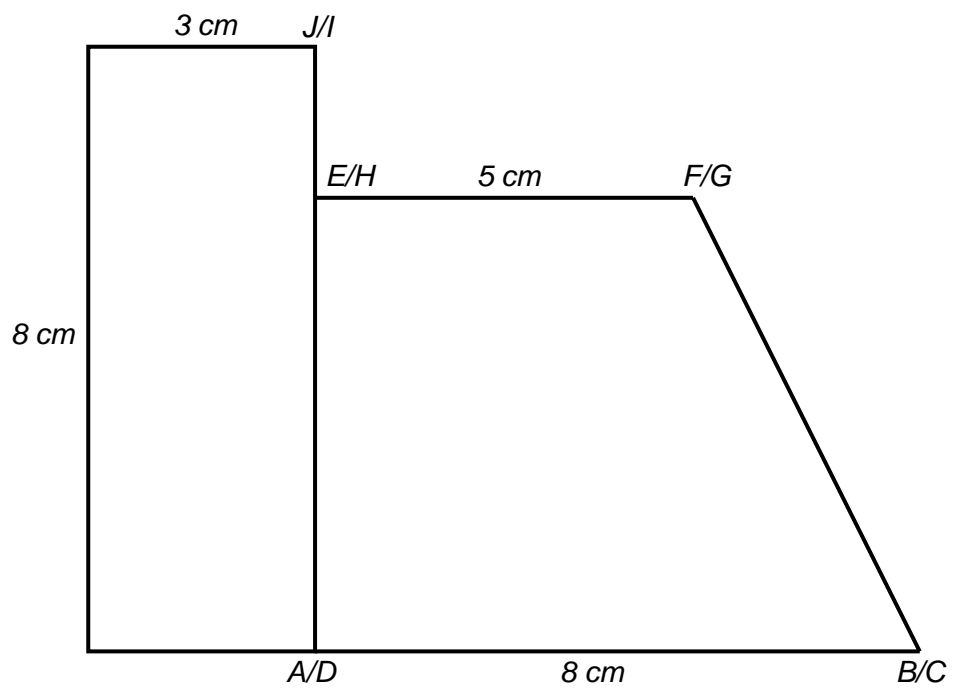
Section B									
Question	Mark Scheme	Sub Mark	Total Mark						
12	(a) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td><math>x</math></td> <td>-2.5</td> <td>2</td> </tr> <tr> <td><math>y</math></td> <td>-19.2</td> <td>24</td> </tr> </table>	$x$	-2.5	2	$y$	-19.2	24	1,1	
$x$	-2.5	2							
$y$	-19.2	24							
	(b) <i>Refer to the graph.</i>  <u>Note:</u>  1) if points are correctly marked on the graph. 2) the curve passes exactly through the points.  <u>Graph:</u>  <ul style="list-style-type: none"> <li>• Axes are drawn in the correct direction with uniform scale in the range <math>-3 \leq x \leq 4</math> and <math>-48 \leq y \leq 48</math>.</li> <li>• All 6 points and 2 points* are correctly marked</li> <li>• Smooth curve and continuously in range of <math>-3 \leq x \leq 4</math> with no straight line part and passing through all the correct 8 points.</li> </ul> <u>Note:</u> (i) 6 @ 7 points are correctly plotted, award 1 mark (ii) Other scale used, deduct 1 mark.	1 2 1							
	(c) (i) $12.5 \leq y \leq 14.5$  (ii) $-1.4 \leq x \leq -1.6$	1 1							
	(d) Identify equation of $y = 6x - 10$  Straight line $y = 6x - 10$ correctly drawn  $-2.0 \leq x \leq -2.2$  $3.7 \leq x \leq 3.9$	1 1 1 1	12						

13	<p>(a) (i) <math>(-6, 4)</math></p> <p>(ii) <math>(6, -1)</math> <i>Note: Point (6, 1) award 1 mark</i></p> <p>(iii) <math>(10, -2)</math> <i>Note: Point (6, 1) award 1 mark</i></p>	1																												
	<p>(b) (i) (a) <math>Y =</math> Reflection in the line <math>y = -x</math></p> <p>(b) <math>X =</math> Enlargement of scale factor 2 with centre <math>(0,2)</math>.</p> <p>(ii) <math>168 = 2^2 \times PQRS</math>  <math>PQRS = \frac{168}{2^2}</math>  <math>PQRS = 42</math></p>	2 3 1 1 1	12																											
14	<p>(a) (i)</p> <table border="1" data-bbox="565 1262 1230 1801"> <thead> <tr> <th>Berat (kg) <i>Mass (kg)</i></th> <th>Kekerapan <i>Frequency</i></th> <th>Titik Tengah <i>Midpoint</i></th> </tr> </thead> <tbody> <tr> <td>31 - 40</td> <td>2</td> <td>35.5</td> </tr> <tr> <td>41 - 50</td> <td>3</td> <td>45.5</td> </tr> <tr> <td>51 - 60</td> <td>6</td> <td>55.5</td> </tr> <tr> <td>61 - 70</td> <td>9</td> <td>65.5</td> </tr> <tr> <td>71 - 80</td> <td>8</td> <td>75.5</td> </tr> <tr> <td>81 - 90</td> <td>4</td> <td>85.5</td> </tr> <tr> <td>91 - 100</td> <td>2</td> <td>95.5</td> </tr> <tr> <td>101 - 110</td> <td>1</td> <td>105.5</td> </tr> </tbody> </table>	Berat (kg) <i>Mass (kg)</i>	Kekerapan <i>Frequency</i>	Titik Tengah <i>Midpoint</i>	31 - 40	2	35.5	41 - 50	3	45.5	51 - 60	6	55.5	61 - 70	9	65.5	71 - 80	8	75.5	81 - 90	4	85.5	91 - 100	2	95.5	101 - 110	1	105.5	1 2 1	
Berat (kg) <i>Mass (kg)</i>	Kekerapan <i>Frequency</i>	Titik Tengah <i>Midpoint</i>																												
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101 - 110	1	105.5																												

	<p>(ii)</p> $\frac{2(35.5) + 3(45.5) + 6(55.5) + 9(65.5) + 8(75.5) + 4(85.5) + 2(95.5) + 1(105.5)}{2 + 3 + 6 + 9 + 8 + 4 + 2 + 1}$ $\frac{2372.5}{35}$ <p>67.79</p> <p>(b) Refer to the graph.</p> <ul style="list-style-type: none"> <li>• Uniform scales and correct axes, using class intervals, midpoints or class boundaries (<math>30.5 &lt; x &lt; 110.5</math>)</li> <li>• All *8 bars correctly drawn.</li> <li>• Histogram with 8 correct bars.</li> </ul> <p>(c) Kelas mod / Modal class = 61 – 70</p>	<p>2</p> <p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p>	<p>12</p>
<p>15</p>	<p>(a) (i)</p>  <p>Correct shape with rectangle <math>AFBCGD</math> and a semicircle . All solid lines.</p> <p><math>JI &gt; EF &gt; FB</math></p> <p>Measurement correct to <math>\pm 0.2</math> cm (one way) and all angles</p> <p><math>\angle A, \angle B, \angle C</math> and <math>\angle D = 90^\circ \pm 1^\circ</math></p>	<p>1</p> <p>1</p> <p>2</p>	



a) (ii)



Correct shape with rectangle 8 cm x 3 cm and trapezium  $ABFE$ . All solid lines

1

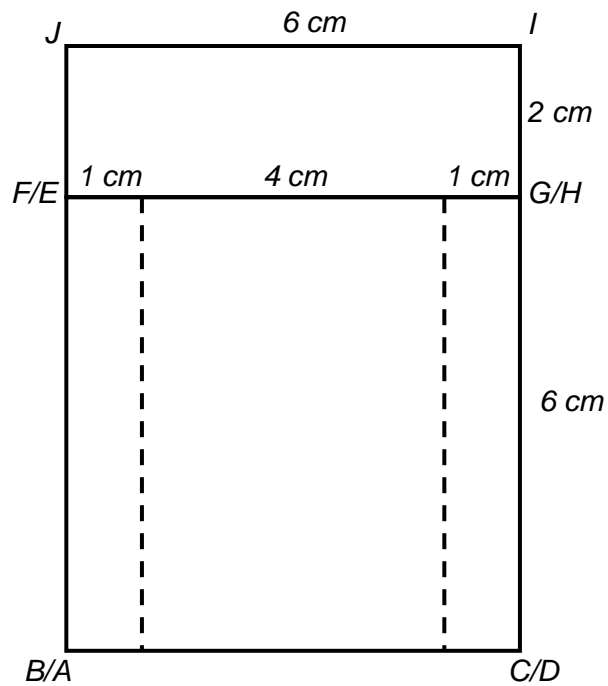
$$AB = AJ > EF > EJ$$

1

Measurement correct to  $\pm 0.2$  cm (one way) and all angles  $90^\circ \pm 1^\circ$  (except  $\angle EFB$  &  $\angle ABF$ )

1

(b)



Correct shape with rectangle  $BCGH$  and  $FGIJ$ . All solid lines

*Note : Ignore dashed lines.*

Dashed lines.

$BC = CG > GI$

Measurement correct to  $\pm 0.2$  cm (one way) and all angles  $90^\circ \pm 1^\circ$ .

1

1

1

2

**12**

16

(a) (  $30^\circ$  N ,  $60^\circ$  W )

Note:

$60^\circ$  W award P2 OR  $60^\circ$  or  $\theta^\circ$  W , award P1

3

<p>(b) <math>(90^\circ - 30^\circ) \times 60'</math></p> <p>3600 nautical miles</p> <p><u>Note:</u> <math>60^\circ</math> or <math>(90^\circ - 30^\circ)</math> seen , award K1</p>	<p>2</p> <p>1</p>	
<p>(c) <math>\frac{4500}{60}</math></p> <p><math>\sim (75^\circ - 30^\circ)</math> or <math>(30^\circ - 75^\circ)</math></p> <p>45° N</p>	<p>1</p> <p>1</p> <p>1</p>	
<p>(d) <math>\frac{4500 + 50 \times 60' \cos 30^\circ}{600}</math></p> <p>11.83</p> <p><u>Note :</u> <math>(50 \times 60^\circ)</math> ) or <math>\cos 30^\circ</math> award K1</p>	<p>2</p> <p>1</p>	<p><b>12</b></p>

