

**SULIT**  
**1449/1**  
**Matematik**  
**Kertas1**  
**Peraturan**  
**Pemarkahan**  
**Mei**  
**2007**

1449/1



**SEKTOR SEKOLAH BERASRAMA PENUH**  
**BAHAGIAN SEKOLAH**  
**KEMENTERIAN PELAJARAN MALAYSIA**

**PERATURAN PEMARKAHAN**  
**PEPERIKSAAN PERTENGAHAN TAHUN 2007**  
**TINGKATAN 5**

**MATEMATIK**

**KERTAS 1**

**1449/1**

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



SEKTOR SEKOLAH BERASRAMA PENUH  
BAHAGIAN SEKOLAH  
KEMENTERIAN PELAJARAN MALAYSIA

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PEPERIKSAAN PERTENGAHAN TAHUN  
TINGKATAN 5 2007

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**MATEMATIK**

Kertas 2

**PERATURAN PEMARKAHAN**

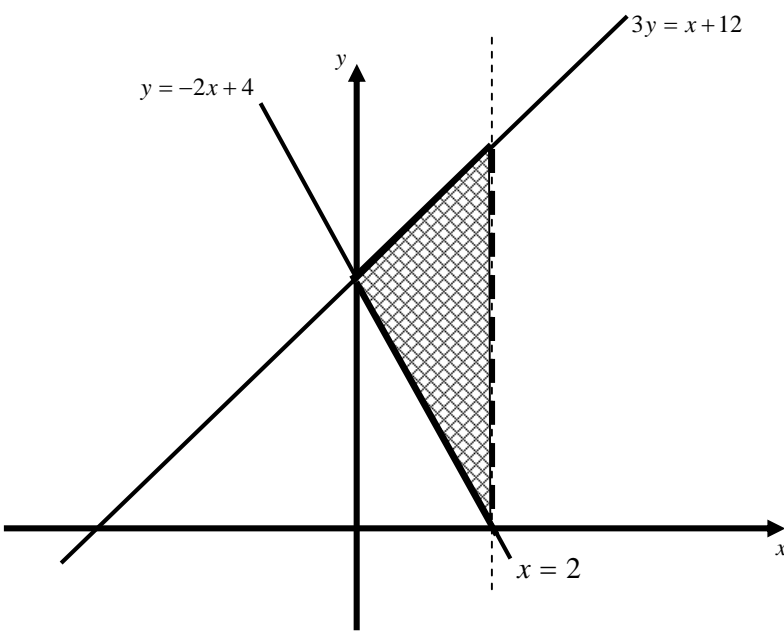
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Peraturan pemarkahan ini mengandungi 11 halaman.

**Section A**  
[ 52 marks ]

No	Marking Scheme	Marks	
1	<div style="text-align: center;">  </div> <p>Straight line <math>x = 2</math> drawn correctly.</p> <p>Region shaded correctly.</p> <p><u>Notes:</u></p> <ol style="list-style-type: none"> <li>1. Region satisfies two inequalities give P1.</li> <li>2. Deduct one mark from K1P2 if <math>x = 2</math> is a solid line.</li> </ol>	K1 P2	<b>3</b>
2	<p>(a) { 4 , 8 }</p> <p style="padding-left: 20px;"><u>Note:</u> Accept without bracket.</p> <p>(b) 6</p>	B1  B2	<b>3</b>
3	<p><math>5(10 \times 10)</math></p> <p><math>3.142 \times 5 \times 10</math> or <math>3.142 \times 5^2</math></p> <p><math>5(10 \times 10) + 3.142 \times 5 \times 10 - 3.142 \times 5^2</math></p> <p>578.55</p>	K1 K1 K1 N1	<b>4</b>

No	Marking Scheme	Marks	
4	$\angle TRM$ $\tan \angle TRM = \frac{5}{\sqrt{8^2 + 6^2}} \text{ or equivalent}$ $\angle TRM = 26.57^\circ \text{ or } 26^\circ 34'$	P1 K2 N1	4
5	<p>(a) True</p> <p>(b) If the inverse matrix of a <math>2 \times 2</math> matrix exists then the determinant is <math>\neq 0</math>. If the determinant is <math>\neq 0</math> then the inverse matrix of a <math>2 \times 2</math> matrix exists.</p> <p>(c) <math>n^2 + 2n</math>, <math>n = 1, 2, 3, \dots</math></p> <p><u>Note:</u> Without <math>n = 1, 2, 3, \dots</math>, give K1.</p>	P1 P1 P1 K2	5
6	$6v + 8w = 16 \text{ or } v = \frac{8 - 4w}{3} \text{ or } w = \frac{8 - 3v}{4} \text{ or equivalent}$ $\frac{20}{3}v = 20 \text{ or } -80w = 20$ $v = 3$ $w = -\frac{1}{4}$	K1 K1 K1 K1	4
7	<p>(a) <math>y = 5</math>  <math display="block">m_{PS} = \frac{5 - 4}{0 - 3}</math> <math display="block">= -\frac{1}{3}</math></p> <p>(b) <math display="block">\frac{4 - 0}{h - 0} = -\frac{1}{3}</math> <math display="block">h = -12</math> <math display="block">\frac{y - 0}{x - 0} = -\frac{1}{3} \text{ or } \frac{y - 4}{x + 12} = -\frac{1}{3}</math> <math display="block">y = -\frac{1}{3}x \text{ or equivalent}</math></p>	P1 K1 N1 K1 N1 K1 N1	7

No	Marking Scheme	Marks	
8	$3x^2 - 11x - 4 = 0$ $(3x+1)(x-4) = 0$ $x = -\frac{1}{3}, x = 4$	K1	
		K1	
		N1 N1	4
9	<p>(a) <math>m = 1</math></p> $n = -\frac{5}{2}$ <p>(b) <math>\begin{pmatrix} 5 &amp; -8 \\ 1 &amp; -2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 9 \\ 3 \end{pmatrix}</math></p> $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{5(-2) - 1(-8)} \begin{pmatrix} -2 & 8 \\ -1 & 5 \end{pmatrix} \begin{pmatrix} 9 \\ 3 \end{pmatrix}$ $x = -3$ $y = -3$	N1	
		N1	
		P1	
		K1	
		N1	
		N1	6
10	<p>(a) <math>\frac{45}{360} \times 2 \times \frac{22}{7} \times 14</math></p> $\left( \frac{45}{360} \times 2 \times \frac{22}{7} \times 14 \right) + 14 + 14 + 14 + 14$ $70\frac{2}{3}$ <p>(b) <math>\frac{45}{360} \times \frac{22}{7} \times 14 \times 14</math> or <math>\frac{90}{360} \times \frac{22}{7} \times 14 \times 14</math></p> $\left( \frac{45}{360} \times \frac{22}{7} \times 14 \times 14 \right) + 2 \left( 14 \times 14 - \frac{90}{360} \times \frac{22}{7} \times 14 \times 14 \right)$ $161$	K1	
		K1	
		N1	
		K1	
		K1	
		N1	6

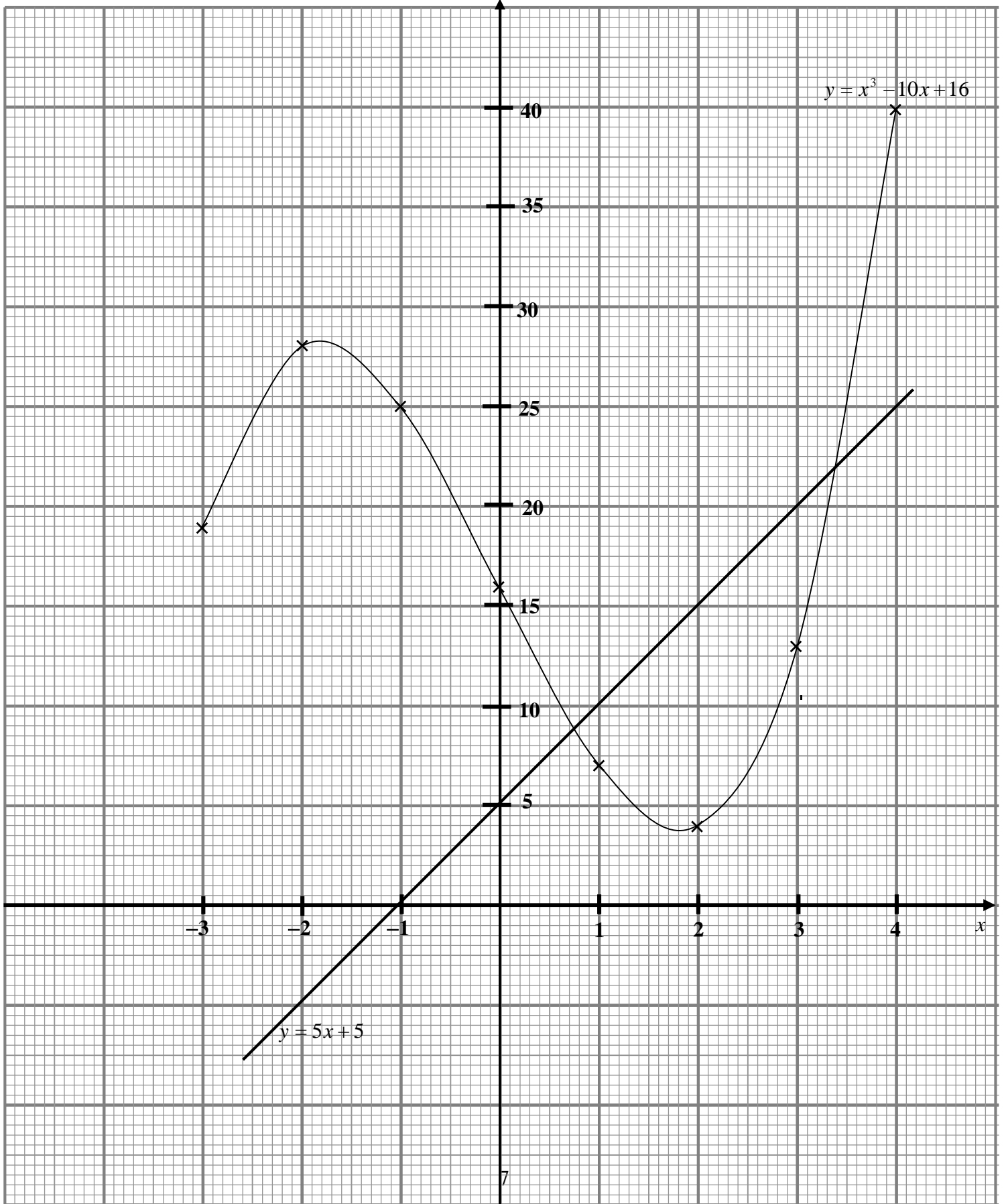
11	<p>(a) <math>\frac{0-20}{30-25}</math> <math>-4\text{ms}^{-2}</math></p> <p>(b) <math>5\text{ s}</math></p> <p>(c) <math>\frac{1}{2} \times 10 \times (v+20) + \frac{1}{2} \times 20 \times (15+20) = 525</math> <math>v = 12\text{ms}^{-1}</math></p>	<p>K1</p> <p>N1</p> <p>P1</p> <p>K2</p> <p>N1</p>	<p><b>6</b></p>
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**Section B**  
[48 marks]

No	Marking Scheme	Marks										
12	<p>(a) <u>Completing the table</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><math>x</math></td> <td style="text-align: center;">-3</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;"><math>y</math></td> <td style="text-align: center;">19</td> <td style="text-align: center;">7</td> <td style="text-align: center;">4</td> </tr> </table> <p>(b) <u>Graph</u> ( Refer graph on page 7)</p> <p>Axes drawn in the correct direction , the uniform scale is in the range given.</p> <p>8 coordinates plotted correctly in the range given.</p> <p>Smooth curve drawn continuously in the range without a straight line at any part and passed through 8 correct coordinates .</p> <p>(c) <math>y = 22</math></p> <p>(d) Identify the equation <math>y = 5x + 5</math> or equivalent.</p> <p>Draw the line <math>y = 5x + 5</math> .</p> <p><math>x = 0.75</math> , <math>3.4</math></p>	$x$	-3	1	2	$y$	19	7	4	K1K1K1	K1 K2 N1 N1 K1 K1 N1 N1	<b>12</b>
$x$	-3	1	2									
$y$	19	7	4									
13	<p>(a) (i) <math>(0, -3)</math></p> <p>(ii) <math>(3, 2)</math></p> <p>(b) (i) <b>U</b> : Rotation of <math>90^\circ</math> clockwise with centre <math>(1, 1)</math>.</p> <p>(ii) <b>V</b> : Enlargement with scale factor 2 at F or <math>(4, 0)</math>.</p> <p>(c) <math>2^2</math></p> <p><math>120 + \text{Area}_{ABCD} = 2^2 \times \text{Area}_{ABCD}</math></p> <p>40</p>	P1 P2 P3 P3	K1 K1 N1	<b>12</b>								

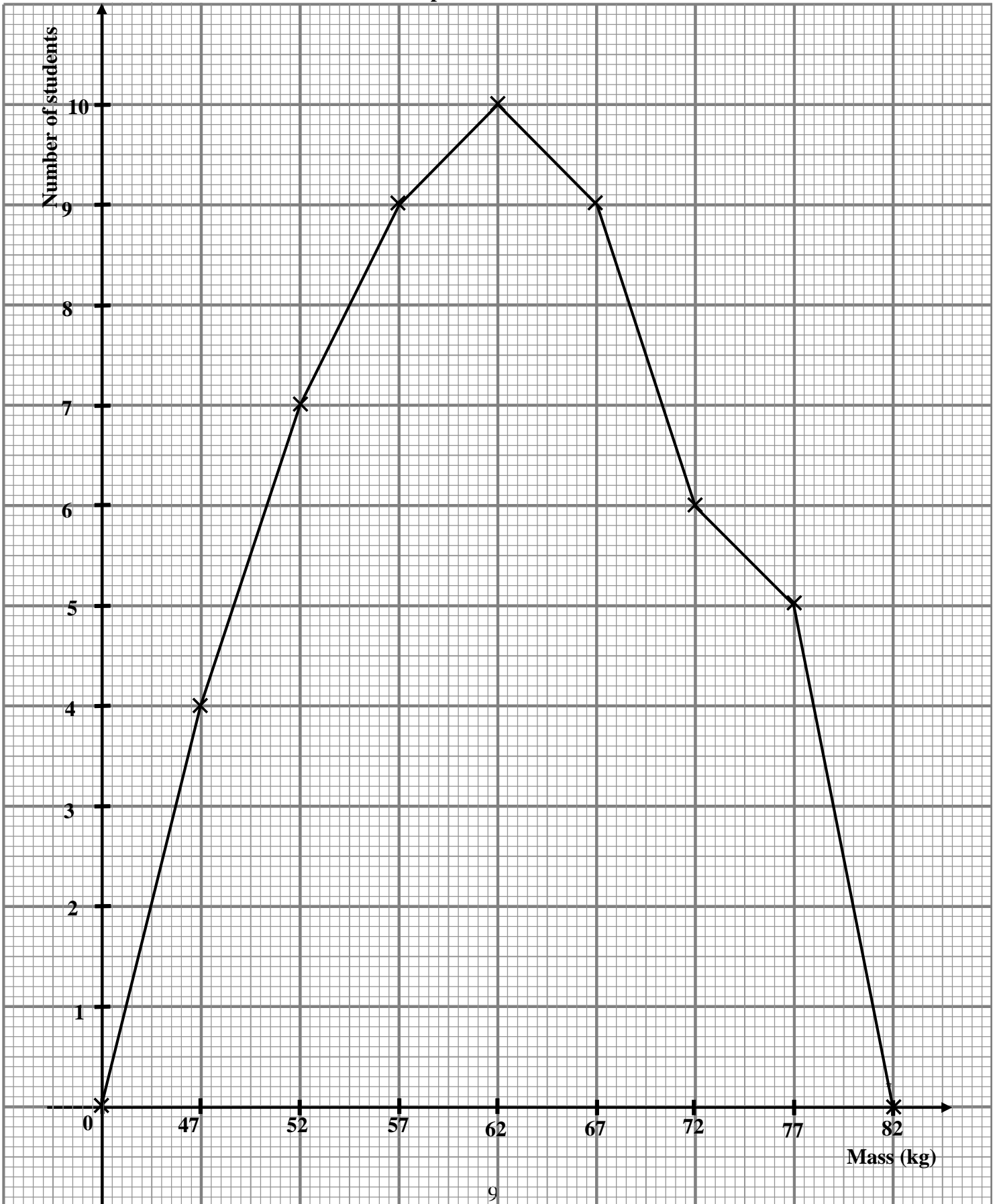


Graph for number 12



No	Marking Scheme	Marks																																
14	<p>(a)</p> <table border="1" data-bbox="662 302 1162 684"> <thead> <tr> <th></th> <th>Class Interval</th> <th>Midpoint</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>45 – 49</td> <td>47</td> <td>4</td> </tr> <tr> <td>II</td> <td>50 – 54</td> <td>52</td> <td>7</td> </tr> <tr> <td>III</td> <td>55 – 59</td> <td>57</td> <td>9</td> </tr> <tr> <td>IV</td> <td>60 – 64</td> <td>62</td> <td>10</td> </tr> <tr> <td>V</td> <td>65 – 69</td> <td>67</td> <td>9</td> </tr> <tr> <td>VI</td> <td>70 – 74</td> <td>72</td> <td>6</td> </tr> <tr> <td>VII</td> <td>75 – 79</td> <td>77</td> <td>5</td> </tr> </tbody> </table> <p>Class interval : ( III to VI ) correct  Midpoint : ( I to VII ) correct  Frequency : ( I to VII ) correct</p> <p>(b) <b><u>Polygon Frequency</u></b> (Refer graph on page 9)</p> <p>Axes drawn in the correct direction , uniform scale for <math>42 \leq x \leq 82</math> and <math>0 \leq y \leq 10</math>.</p> <p>Horizontal axis labeled using midpoint / boundary / class interval.</p> <p>7 points plotted correctly <u>or</u> the polygon frequency passed through them.</p> <p>Points ( 42 , 0 ) and ( 82 , 0 ) plotted correctly <u>or</u> the polygon frequency passed through them.</p> <p>The polygon frequency completed and passed through 10 points correctly.</p> <p>(c) (i) 60 – 64</p> <p>(ii) <math display="block">\frac{4 \times 47 + 7 \times 52 + 9 \times 57 + 10 \times 62 + 9 \times 67 + 6 \times 72 + 5 \times 77}{50}</math></p> <p>62.1</p>		Class Interval	Midpoint	Frequency	I	45 – 49	47	4	II	50 – 54	52	7	III	55 – 59	57	9	IV	60 – 64	62	10	V	65 – 69	67	9	VI	70 – 74	72	6	VII	75 – 79	77	5	<p>P1 P1 P1</p> <p>K1 K1 K1 K1 K1 N1</p> <p>P1 K2 N1</p>
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VI	70 – 74	72	6																															
VII	75 – 79	77	5																															
		<b>12</b>																																

Graph for number 14



No	Marking Scheme	Marks																																				
15	<p>(a) (i) 2</p> <p>(ii) <math display="block">\frac{(0 \times 16) + (1 \times 5) + (2 \times 6) + (3 \times 5) + (4 \times 6) + (5 \times 4) + (6 \times 0) + (7 \times 1) + (8 \times 2)}{45}</math></p> <p>2.2</p> <p>(b) (i)</p> <table border="1" data-bbox="672 501 1167 928"> <thead> <tr> <th></th> <th>Marks</th> <th>Candidates</th> <th>Cumulative Frequency</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>11 – 20</td> <td>18</td> <td>18</td> </tr> <tr> <td>II</td> <td>21 – 30</td> <td>22</td> <td>40</td> </tr> <tr> <td>III</td> <td>31 – 40</td> <td>35</td> <td>75</td> </tr> <tr> <td>IV</td> <td>41 – 50</td> <td>43</td> <td>118</td> </tr> <tr> <td>V</td> <td>51 – 60</td> <td>30</td> <td>148</td> </tr> <tr> <td>VI</td> <td>61 – 70</td> <td>23</td> <td>171</td> </tr> <tr> <td>VII</td> <td>71 – 80</td> <td>21</td> <td>192</td> </tr> <tr> <td>VIII</td> <td>81 – 90</td> <td>8</td> <td>200</td> </tr> </tbody> </table> <p>Cumulative Frequency : ( I to VIII ) correct</p> <p>(ii) <b><u>Ogive</u></b> (Refer graph on page 11)</p> <p>Axes drawn in the correct direction , uniform scale for <math>42 \leq x \leq 82</math> and <math>0 \leq y \leq 10</math>.</p> <p>8 points plotted correctly <u>or</u> the polygon frequency passed through them.</p> <p>Point ( 10.5 , 0 ) plotted correctly <u>or</u> the ogive passed through it.</p> <p>Ogive drawn smoothly and passed through 9 points.</p> <p>(iii) 33 <i>or</i> 34</p>		Marks	Candidates	Cumulative Frequency	I	11 – 20	18	18	II	21 – 30	22	40	III	31 – 40	35	75	IV	41 – 50	43	118	V	51 – 60	30	148	VI	61 – 70	23	171	VII	71 – 80	21	192	VIII	81 – 90	8	200	<p>N1</p> <p>K2</p> <p>N1</p> <p>P2</p> <p>K1</p> <p>K1</p> <p>K1</p> <p>K1</p> <p>N2</p>
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Graph for number 15

