

**SULIT  
1449/2  
Matematik  
Kertas 2  
Peraturan  
Pemarkahan  
Oktober  
2007  
2 ½ JAM**

**PERSIDANGAN KEBANGSAAN  
PENGETUA SEKOLAH MALAYSIA  
CAWANGAN TERENGGANU  
*DENGAN KERJASAMA*  
JABATAN PENDIDIKAN TERENGGANU**

**PEPERIKSAAN AKHIR TAHUN 2007**

**TINGKATAN EMPAT**

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**MATEMATIK**

**KERTAS 2**

**PERATURAN PEMARKAHAN**

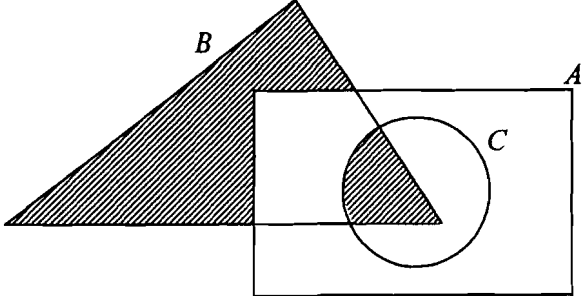
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**UNTUK KEGUNAAN PEMERIKSA SAHAJA**

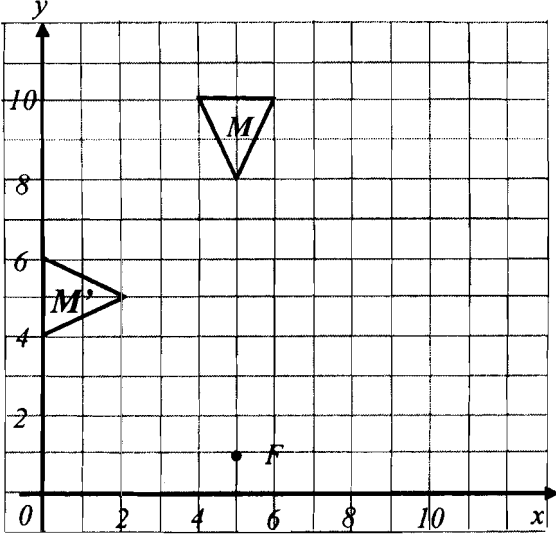
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Peraturan pemarkahan ini mengandungi 11 halaman bercetak.

No.	Marking Scheme	Mark	
<b>Section A</b> [52 Marks]			
1	$2m^2 - 7m + 6 = 0$ $(2m - 2)(m - 3) \text{ or } x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(2)(6)}}{2(2)}$ $x = \frac{3}{2}, 2$	K1	4
		K1	
		N1N1	
2	$9x + 3y = 9 \text{ or } 18x - y = -10 \text{ or equivalent}$ <p><b>OR</b></p> $y = 3 - 3x \text{ or } x = \frac{3 - y}{3} \text{ or equivalent (K1)}$ $21x = -7 \text{ or equivalent}$ $x = -\frac{1}{3}$ $y = 4$	K1	4
		K1	
		N1 N1	
3 (a)  (b)	$A \cap C'$ 	P1	3
		P2	
4 a)	$\frac{0 - (-2)}{h - 0} = \frac{1}{2}$ $h = 4$	K1	
		N1	

b)	<p>Gradient of <math>MN = \frac{1}{2}</math></p> <p><math>l = \frac{1}{2}(-4) + c</math></p> <p><math>y = \frac{1}{2}x + 6</math> or equivalent</p>	P1	
c)	<p><math>x</math>- intercept = <math>-12</math></p>	K1	6
5	<p>Identify angle <math>BFA</math> or <math>AFB</math></p> <p><math>\text{Tan } \angle BFA = \frac{7}{6}</math></p> <p><math>\angle BFA = 49.4^\circ</math> or <math>49^\circ 24'</math></p>	P1	
6	<p><math>\frac{1}{3} \times \pi \times \left(\frac{9}{2}\right)^2 \times 8</math> (do not accept 169.71)</p> <p><math>\frac{1}{2} \left( \frac{4}{3} \times \pi \times \left(\frac{7}{2}\right)^3 \right)</math> (do not accept 89.83 )</p> <p><math>\frac{1}{3} \times \pi \times \left(\frac{9}{2}\right)^2 \times 8 - \frac{1}{2} \left( \frac{4}{3} \times \pi \times \left(\frac{7}{2}\right)^3 \right)</math></p> <p><u>79.88</u> (Accept in the range 79.81 to 79.90)</p>	K1	4
7 a)	<p><math>\frac{120}{360} \times \frac{22}{7} \times 10 \times 10</math> or <math>\frac{180}{360} \times \frac{22}{7} \times 7 \times 7</math> or <math>\frac{180}{360} \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2}</math></p> <p><math>\frac{120}{360} \times \frac{22}{7} \times 10 \times 10 + \frac{180}{360} \times \frac{22}{7} \times 7 \times 7 - \frac{180}{360} \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2}</math></p> <p><u>162.51</u> (Accept in the range 162.46 to 162.52)</p>	K1	
b)	<p><math>\frac{120}{360} \times 2 \times \frac{22}{7} \times 10</math> or <math>\frac{180}{360} \times 2 \times \frac{22}{7} \times 7</math> or <math>\frac{60}{360} \times 2 \times \frac{22}{7} \times 14</math></p> <p><math>\frac{120}{360} \times 2 \times \frac{22}{7} \times 10 + \frac{180}{360} \times 2 \times \frac{22}{7} \times 7 + \frac{60}{360} \times 2 \times \frac{22}{7} \times 14 + 10 + 4</math></p> <p><u>71.62</u> (Accept in the range 71.60 to 71.62)</p>	K1	6

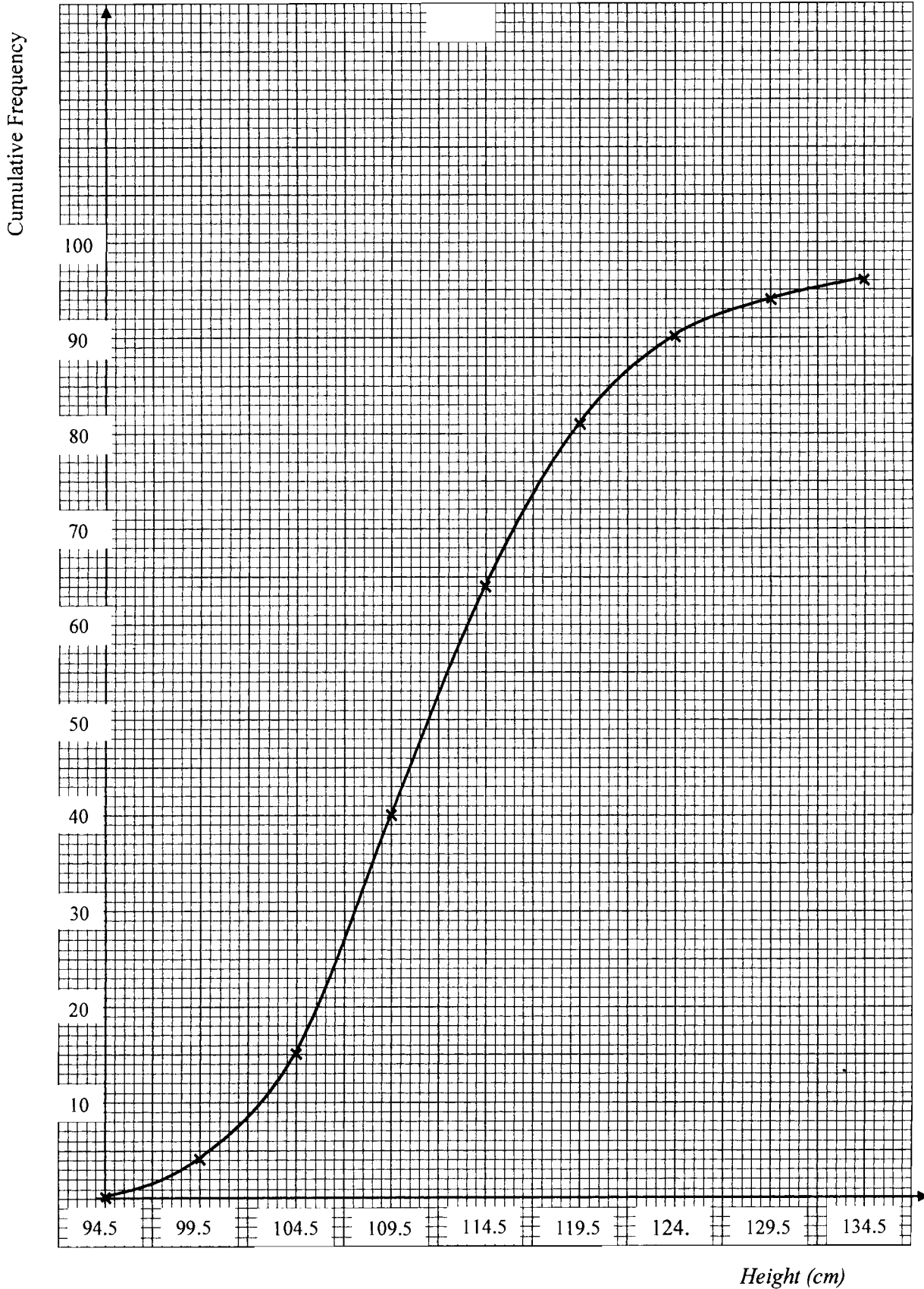
8 (a) i)	Statement	P1	
ii)	Non-statement	P1	
(b)	<i>Implication I :</i> If two lines are parallel, then the two line have the same gradient.	P1	
	<i>Implication II :</i> If two lines have the same gradient, then the two lines are parallel.	P1	
(c)	$m \neq n$	P1	5
9 (a)	False	P1	
(b) i)	$\neq$	P1	
ii)	$=$	P1	
(c)	$3n^2 - 1, n = 1, 2, 3, 4, \dots$	P1P1	5
10.(a)	$2x + 3(0) = 6$ $x = 3$	K1 N1	
(b)	Gradient of $PQ = -\frac{2}{3}$ $5 = -\frac{2}{3}(-9) + c$ $c = -1$ $y = -\frac{2}{3}x - 1$ or equivalent	P1 P1 K1 N1	6
11.(a) i)	{1, 2, 3, 4, 5, 6}	P1	
ii)	{2, 3, 5}	P1	
(b)	$\frac{1}{50} \times x = 18$ $x = 900$	K2 N1	5

No.	Marking scheme	Mark	
<p><b>Section B</b> [48 marks]</p>			
12 a) i)	(8, 5)	P1	
ii) a)			
b)	(9, 5)	P2	5
12.b) i)	$\frac{1}{2} [(x + 1) + (x + 5)]x$ $x^2 + 3x$	K2	
		N1	
ii)	$x^2 + 3x = 130$	K1	
	$x^2 + 3x - 130 = 0$	K1	
	$(x - 10)(x + 13) = 0$	K1	
	$X = 10$	N1	7

13 (a)	<table border="1"> <thead> <tr> <th>Ages</th> <th>Class mark</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>16 - 20</td> <td>18</td> <td>0</td> </tr> <tr> <td>21 - 25</td> <td>23</td> <td>7</td> </tr> <tr> <td>26 - 30</td> <td>28</td> <td>17</td> </tr> <tr> <td>31 - 35</td> <td>33</td> <td>9</td> </tr> <tr> <td>36 - 40</td> <td>38</td> <td>12</td> </tr> <tr> <td>41 - 45</td> <td>43</td> <td>3</td> </tr> <tr> <td>46 - 50</td> <td>48</td> <td>2</td> </tr> <tr> <td>51 - 55</td> <td>53</td> <td>0</td> </tr> </tbody> </table>	Ages	Class mark	Frequency	16 - 20	18	0	21 - 25	23	7	26 - 30	28	17	31 - 35	33	9	36 - 40	38	12	41 - 45	43	3	46 - 50	48	2	51 - 55	53	0		
	Ages	Class mark	Frequency																											
	16 - 20	18	0																											
	21 - 25	23	7																											
	26 - 30	28	17																											
	31 - 35	33	9																											
	36 - 40	38	12																											
	41 - 45	43	3																											
	46 - 50	48	2																											
51 - 55	53	0																												
	Class interval	P1																												
	Class mark	P1																												
	Frequency [ Give P1 for 6 or 7 correct frequency]	P2																												
(b) (i)	Modal class = 26 – 30	P1																												
(ii)	$\frac{23(7) + 28(17) + 33(9) + 38(12) + 43(3) + 48(2)}{50}$	K2																												
	= 32.3	N1																												
(c)	<p><u>Graph:</u></p> <p>Axes are drawn in correct directions                      Uniform scales are use in the range <math>18 \leq x \leq 53</math> and <math>0 \leq y \leq 17</math>.                      x-axis labeled using class marks.</p> <p>Using the graph paper, all 8 point* are correctly marked.</p> <p><u>Notes:</u></p> <p>1) If the axes/scale not labeled, assume as in the question.                      2) 5 or 6 point correctly marked, give K1                      3) For other scale used, deduct 1 mark from K2N1/K2N0/K1N0.</p> <p>Frequency polygon drawn, all points connected with straight line and closed.</p>	K1	K2																											
		N1																												
			<b>12</b>																											



No.	Marking scheme	Mark																															
14 (a) i)	5	P1																															
ii)	<table border="1" data-bbox="371 300 930 736"> <thead> <tr> <th><i>Height</i></th> <th><i>Frequency</i></th> <th><i>Class mark</i></th> </tr> </thead> <tbody> <tr><td>90 - 94</td><td>0</td><td>92</td></tr> <tr><td>95 - 99</td><td>4</td><td>97</td></tr> <tr><td>100 - 104</td><td>10</td><td>102</td></tr> <tr><td>105 - 109</td><td>26</td><td>107</td></tr> <tr><td>110 - 114</td><td>24</td><td>112</td></tr> <tr><td>115 - 119</td><td>17</td><td>117</td></tr> <tr><td>120 - 124</td><td>9</td><td>122</td></tr> <tr><td>125 - 129</td><td>4</td><td>127</td></tr> <tr><td>130 - 134</td><td>2</td><td>132</td></tr> </tbody> </table> <p data-bbox="371 783 566 880">Frequency Class marks Upper boundary</p> $\frac{97(4) + 102(10) + 22(52) + 107(26) + 112(24) + 117(17) + 122(9) + 127(4) + 132(2)}{96}$ <p data-bbox="371 989 480 1017">= 111.84</p>	<i>Height</i>	<i>Frequency</i>	<i>Class mark</i>	90 - 94	0	92	95 - 99	4	97	100 - 104	10	102	105 - 109	26	107	110 - 114	24	112	115 - 119	17	117	120 - 124	9	122	125 - 129	4	127	130 - 134	2	132	P1 P1 P1 K2 N1	
<i>Height</i>	<i>Frequency</i>	<i>Class mark</i>																															
90 - 94	0	92																															
95 - 99	4	97																															
100 - 104	10	102																															
105 - 109	26	107																															
110 - 114	24	112																															
115 - 119	17	117																															
120 - 124	9	122																															
125 - 129	4	127																															
130 - 134	2	132																															
b) i)	<p data-bbox="371 1059 459 1087"><u>Graph:</u></p> <p data-bbox="371 1129 964 1268">Axes are drawn in correct directions Uniform scales are use in the range <math>94.5 \leq x \leq 134.5</math> and <math>0 \leq y \leq 100</math>. x-axis labeled using upper boundary.</p> <p data-bbox="371 1304 938 1368">Using the graph paper, all 9 point*are correctly marked.</p> <p data-bbox="371 1410 1025 1559"><u>Notes:</u> 1) If the axes/scale not labeled, assume as in the question. 2) 7 or 8 point correctly marked, give K1 3) For other scale used, deduct 1 mark from K2N1/K2N0/K1N0.</p> <p data-bbox="371 1598 1020 1661">Smooth curve continuously in the range <math>94.5 \leq x \leq 134.5</math>, without a straight line, passing through all 9 points*.</p>	K1 K2 N1																															
(ii)	9.5 ± 0.05	P1	12																														



No.	Marking scheme	Mark	
15 a) (i) (a)	$\angle PBT$	P2	
(b)	$\angle PUT$	P1	
(ii)	$\tan \angle PUT = \frac{12}{9}$	K2	
	$\angle PUT = 53.1^\circ \text{ or } 53^\circ 8'$	N1	6
b) (i)	$\frac{30}{100}$ or $\frac{3}{10}$	P2	
(ii)	$\frac{10 + 30 + 18 + 12}{100}$	K1	
	$\frac{70}{100}$ or $\frac{7}{10}$	N1	
(iii)	$\frac{30 + 16}{100}$	K1	
	$\frac{48}{100}$ or $\frac{12}{25}$	N1	6
			<b>12</b>
16.a) i)	{10, 11, 12}	P1	
ii)	{4, 11, 12}	P1	
iii)	6	P1	3
16.b) i)	$\frac{1}{2}h(x) = 96$	K1	
	$h = \frac{192}{x}$	N1	

ii)	$h(x-2)$	K1	
	$\frac{192x}{2x} + \frac{768}{2x} - xh + 2h$	K1	
	$h(x-2) = 96 - \frac{192x}{2x} + \frac{768}{2x} - xh + 2h$	K1	
	$h = \frac{768}{x^2}$	N1	
iii)	$\frac{1}{2}(x+x-4)\frac{768}{x^2}$	K2	
	$(x-2)\frac{768}{x^2}$	N1	9
			12

Note:

$$\text{Marks} = \frac{\text{Score for paper 1} + \text{score for paper 2}}{140} \times 100$$

**END OF MARKING SCHEME**