



**PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA
SEKOLAH MENENGAH MALAYSIA
CAWANGAN NEGERI SEMBILAN DARUL KHUSUS**

PEPERIKSAAN PERCUBAAN SPM

2009

**PERATURAN PEMARKAHAN
MATEMATIK KERTAS 1 DAN 2
1449/1 DAN 1449/2**

PERCUBAAN SPM 2009 MATEMATIK KERTAS 1
NEGERI SEMBILAN
SKEMA

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

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MATHEMATICS 1449/2
NEGERI SEMBILAN

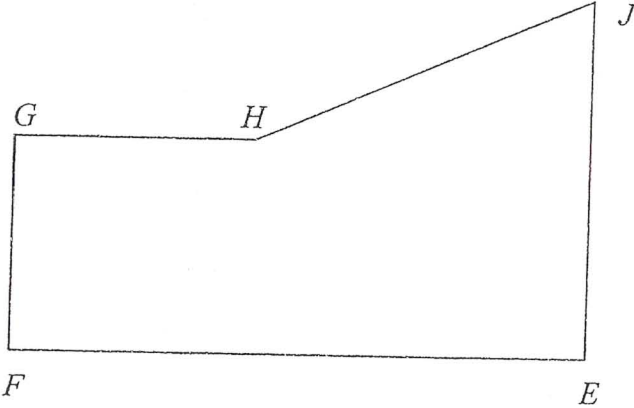
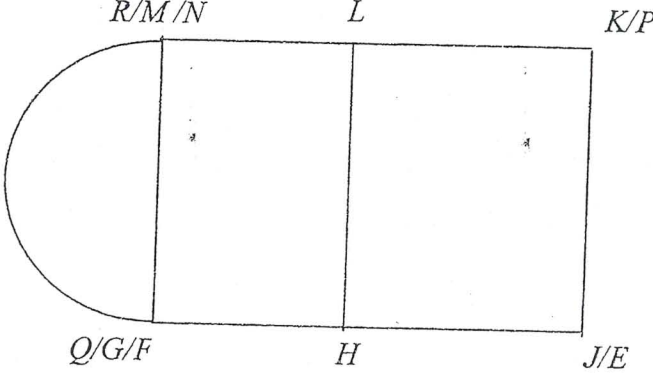
No	Marking Scheme	Marks
1.		<p>P1</p> <p>P2</p> <p>3</p>
2.	$6g - 2h = 22$ or $3g + 6h = -24$ or $h = 3g - 11$ or $g = -8 - 2h$ $7g = 14$ or $7h = -35$ $g = 2$ $h = -5$	<p>K1</p> <p>K1</p> <p>N1</p> <p>N1</p> <p>4</p>
3.	$3x^2 + x - 2 = 0$ $(3x - 2)(x + 1) = 0$ $x = \frac{2}{3}$, $x = -1$	<p>K1</p> <p>K1</p> <p>N1 N1</p> <p>4</p>
4.	$\frac{1}{3} \times \frac{22}{7} \times 3 \times 3 \times 7$ $\frac{2}{3} \times \frac{22}{7} \times 3 \times 3 \times 3$ $\frac{1}{3} \times \frac{22}{7} \times 3 \times 3 \times 7 + (\frac{2}{3} \times \frac{22}{7} \times 3 \times 3 \times 3)$ $\frac{858}{7}$ or $122 \frac{4}{7}$ or 122.57	<p>K1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>4</p>

No	Marking Scheme	Marks
5.	a) some	P1
	b) and	P1
	c) Antecedent : $ab < 0$	P1
	Consequence: $a < 0$ or $b < 0$	P1
	d) Number of subset of a sets with 4 elements is $2^4 = 16$	K1N1
		6
6.	a) $m = 2$	K1
	$8 = 2(-4) + c$ or $c = 16$	K1
	$y = 2x + 16$	N1
	b) $2x + 16 = 0$	K1
	x-intercept = -8	N1
		5
7.	a) $\frac{60^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 28$ or $\frac{180^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 7$ or $\frac{1}{2} \times 2 \times \pi \times 7$	K1
	$\frac{60^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 28 + (\frac{180^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 7) + 28 + 14$	K1
	$93\frac{1}{3}$ or 93.333	N1
	b) $\frac{60^\circ}{360^\circ} \times \frac{22}{7} \times 28 \times 28$ or $\frac{180^\circ}{360^\circ} \times \frac{22}{7} \times 7 \times 7$ or $\pi \times 7^2$	K1
	$\frac{60^\circ}{360^\circ} \times \frac{22}{7} \times 28 \times 28 - (\frac{180^\circ}{360^\circ} \times \frac{22}{7} \times 7 \times 7)$	K1
		N1
		6

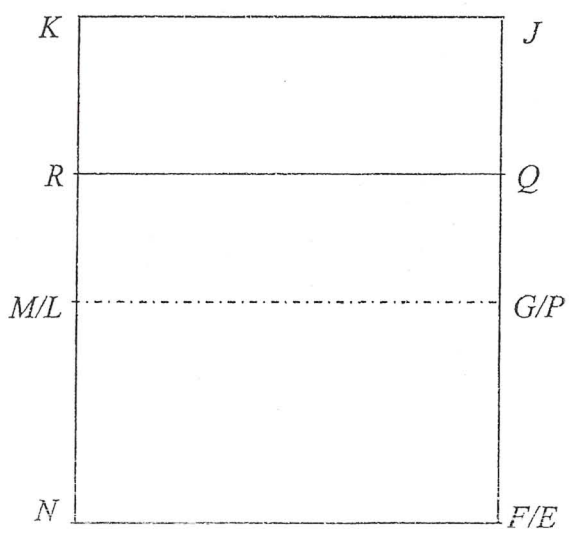
No	Marking Scheme	Marks																				
8.	a) $1(m) - 3(2) = 0$	K1K1																				
	$m = 6$	N1																				
	b) $\begin{pmatrix} h \\ k \end{pmatrix} = -1 \begin{pmatrix} 5 & -3 \\ -2 & 1 \end{pmatrix} \begin{pmatrix} 5 \\ 6 \end{pmatrix}$	K2																				
	$h = -7$	N1																				
	$k = 4$	N1																				
	If $\begin{pmatrix} -7 \\ 4 \end{pmatrix}$ ----- N1	7																				
9.	a) 2 hours	P1																				
	b) 500 km	P1																				
	c) $\frac{300}{4}$ or 75 kmh^{-1}	P1																				
	d) $80 = \frac{800}{t}$	K1																				
	$t_s = 10 \text{ hours}$	N1																				
		5																				
10.	<table border="1"> <tr> <td></td> <td>3</td> <td>6</td> <td>15</td> <td>17</td> </tr> <tr> <td>5</td> <td>5,3</td> <td>5,6</td> <td>5,15</td> <td>5,17</td> </tr> <tr> <td>15</td> <td>15,3</td> <td>15,6</td> <td>15,15</td> <td>15,17</td> </tr> <tr> <td>19</td> <td>19,3</td> <td>19,6</td> <td>19,115</td> <td>19,17</td> </tr> </table>		3	6	15	17	5	5,3	5,6	5,15	5,17	15	15,3	15,6	15,15	15,17	19	19,3	19,6	19,115	19,17	P1
		3	6	15	17																	
	5	5,3	5,6	5,15	5,17																	
	15	15,3	15,6	15,15	15,17																	
	19	19,3	19,6	19,115	19,17																	
a) (5,3 5,6 5,15 5,17 15,3 15,6 15,15 15,17 19,6 19,15)	K1																					
$\frac{10}{12} = \frac{5}{6}$	N1																					
b) (5,6 15,6)	K1																					
$\frac{2}{12} = \frac{1}{6}$	N1																					
	www.cikguohaiza.com	5																				

No	Marking Scheme	Marks						
11.	$\angle GML$ or $\angle LMG$ $\tan \angle GML = \frac{7}{12}$ $\angle GML = 30.26^\circ$ or $30^\circ 15'$	P1 K1 N1 3						
12.	<p>a)</p> <table border="1"> <tr> <td>x</td><td>-2</td><td>2</td></tr> <tr> <td>y</td><td>-12</td><td>8</td></tr> </table> <p>b) <u>Graph</u> (Refer graph on Lampiran 1)</p> <p>Axes are drawn in the correct direction, the uniform scale is in the range given.</p> <p>9 coordinates are plotted correctly in the range given.</p> <p>Smooth curve is drawn continuously in the range without a straight line at any part and passes through 9 correct coordinates.</p> <p>c) i. $x = -2.8 \pm 0.1$ ii. $y = 8 \pm 1$</p> <p>d) Identify the equation $y = 2x - 5$ or equivalent.</p> <p>Draw the line $y = 2x - 5$</p> <p>$x = -1.7 \pm 0.1$, 3.2 ± 0.1</p>	x	-2	2	y	-12	8	K1K1 K1 K2 N1 P1 P1 K1 K1 N1N1 12
x	-2	2						
y	-12	8						

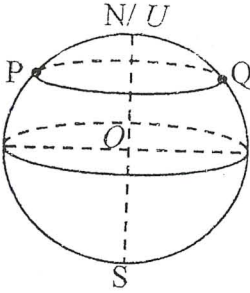
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No	Marking Scheme	Marks
13.	<p>a)</p>  <p>The shape must be correct .</p> <p>$FG=GH < JE < FE$</p> <p>The measurement is accurate to ± 0.2 cm. (one way) and the angles at all verticals of the rectangle are $90^\circ \pm 1^\circ$.</p> <p>b) i.</p>  <p>The shape must be correct in rectangle form $GHLM$, $HJKL$ and a half circle . All lines must be drawn in full.</p> <p>$GH = ML < HJ = LK < JK = LH$ All lines must be drawn in full.</p> <p>The measurement is accurate to ± 0.2 cm (one way) and the angles at all verticals of the rectangle are $90^\circ \pm 1^\circ$.</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N2</p>

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	<p>b) ii.</p>  <p>The shape must be correct in quadrilateral form for $NFGM$, $MGQR$, and $RQJK$.</p> $NF = MG = RQ = KJ > NM = FG > KR = JQ$ <p>MG is dotted line.</p> <p>The measurement is accurate to ± 0.2 cm. (one way) and the angles at all vertices of the rectangle are $90^\circ \pm 1^\circ$.</p>	<p>K1</p> <p>K1</p> <p>K1</p> <p>N2</p> <p>12</p>

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 MATHEMATICS 1449/2
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14.	<p>a. </p> <p>Latitude R = 60°S</p> <p>b. $PQ = 60^\circ \times 60$ $= 3600 \text{ nm.}$</p> <p>c. $RT = 140^\circ \times 60 \times \cos 60^\circ$ $= 4200 \text{ nm}$</p> <p>d. $560 \text{ knots} = \frac{120^\circ \times 60 + 4200}{\text{time}}$ $= 20.36 \text{ hrs.}$</p>	<p>P1</p> <p>P2</p> <p>K1</p> <p>N1</p> <p>K2</p> <p>N1</p> <p>K2 K1</p> <p>N1</p>
		12

PEPERIKSAAN PERCUBAAN SPM 2009
MATHEMATICS 1449/2
NEGERI SEMBILAN

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15.	<p>a) i. $(10, -2)$</p> <p>ii. $(11, 3)$</p> <p>b) i. $W = A$ rotation, 90° anticlockwise about the point $(7, 6)$.</p> <p>ii. $V = A$n enlargement, about centre $(8, 2)$ with scale factor $= 3$.</p> <p>c)</p> $\frac{85.5}{\text{Area of object}} = 3^2$ <p>Shaded region $= 85.5 - 9.5$</p> $= 76 \text{ cm}^2$	<p>P1</p> <p>P2</p> <p>P3</p> <p>P3</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>12</p>																											
16.	<p>a)</p> <table border="1"> <thead> <tr> <th>Class interval <i>Selang Kelas</i></th><th>Midpoint <i>Titik tengah</i></th><th>Frequency <i>Kekerapan</i></th></tr> </thead> <tbody> <tr><td>41 – 45</td><td>43</td><td>2</td></tr> <tr><td>46 – 50</td><td>48</td><td>5</td></tr> <tr><td>51 – 55</td><td>53</td><td>8</td></tr> <tr><td>56 – 60</td><td>58</td><td>10</td></tr> <tr><td>61 – 65</td><td>63</td><td>6</td></tr> <tr><td>66 – 70</td><td>68</td><td>5</td></tr> <tr><td>71 – 75</td><td>73</td><td>3</td></tr> <tr><td>76 – 80</td><td>78</td><td>1</td></tr> </tbody> </table> <p>All frequencies correct.</p> <p>b) Mean =</p> $\frac{(2 \times 43) + (5 \times 48) + (8 \times 53) + (10 \times 58) + (6 \times 63) + (5 \times 68) + (3 \times 73) + 78}{40}$ <p>or $\frac{2345}{40}$</p> <p>58.63/58.625</p>	Class interval <i>Selang Kelas</i>	Midpoint <i>Titik tengah</i>	Frequency <i>Kekerapan</i>	41 – 45	43	2	46 – 50	48	5	51 – 55	53	8	56 – 60	58	10	61 – 65	63	6	66 – 70	68	5	71 – 75	73	3	76 – 80	78	1	<p>P1</p> <p>P1</p> <p>P2</p> <p>K2</p> <p>N1</p>
Class interval <i>Selang Kelas</i>	Midpoint <i>Titik tengah</i>	Frequency <i>Kekerapan</i>																											
41 – 45	43	2																											
46 – 50	48	5																											
51 – 55	53	8																											
56 – 60	58	10																											
61 – 65	63	6																											
66 – 70	68	5																											
71 – 75	73	3																											
76 – 80	78	1																											

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MATHEMATICS 1449/2
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	<p>c) <u>Histogram</u> (<i>Refer graph on Lampiran 2</i>)</p> <p>Axes are drawn in the correct direction , uniform scale for $40.5 \leq x \leq 80.5$ and $0 \leq y \leq 10$</p> <p>Horizontal axis is labeled using midpoint/ upper boundary/class Intervals, 8 rectangular bars are drawn correctly through them.</p>	<p>P1</p> <p>P1 K2</p>
d) 15		P1
		12

Graph for Question 12

