

SULIT
1449/2
Matematik
Kertas2
Peraturan
Pemarkahan
Ogos
2019



MODUL ULANGKAJI KECEMERLANGAN BERFOKUS SPM
2019
Set 2

MATEMATIK

Kertas 2

PERATURAN PEMARKAHAN

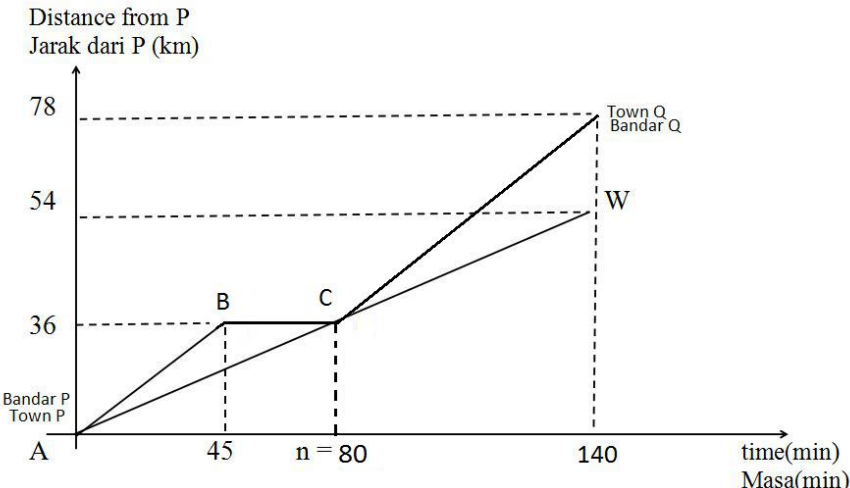
Peraturan pemarkahan ini mengandungi 11 halaman bercetak

[Lihat sebelah
SULIT

1449/2

Bahagian A
[52 markah]

No	Peraturan Pemarkahan	Markah	
1.	$y \leq 6$, $y \geq -x + 2$ $y > x - 2$	K1 K1 K1	3
2	$4x + 5y = 9700$ atau $2x + 3y = 5100$ $4x + 6y = 10200$ <u>atau setara</u> $y = 500$ $x = 1800$ <i>komputer riba = RM1800</i> <i>Mesin cetak = RM 500</i>	K1 K1 N1 N1	4
3	$2x^2 - 7x - 4 = 0$ $(x - 4)(2x + 1) = 0$ $x = 4, x = -\frac{1}{2}$	K1 K1 N1 N1	4
4	a) $\angle ABE$ b) $\sin \angle ABE = \frac{108}{125}$ $\angle ABE = \sin^{-1} \frac{108}{125}$ $= 59.77^\circ$ atau $59^\circ 46'$	P1 K1 N1	3
5	Volume of cake mixture / isipadu adunan $(\frac{2}{3} \times \frac{22}{7} \times 28^3) - 2 \times \frac{22}{7} \times 21^2 \times 14$ Isipadu adunan kek yang tinggal = 7186.67 cm^3	K1K1K1 N1	4

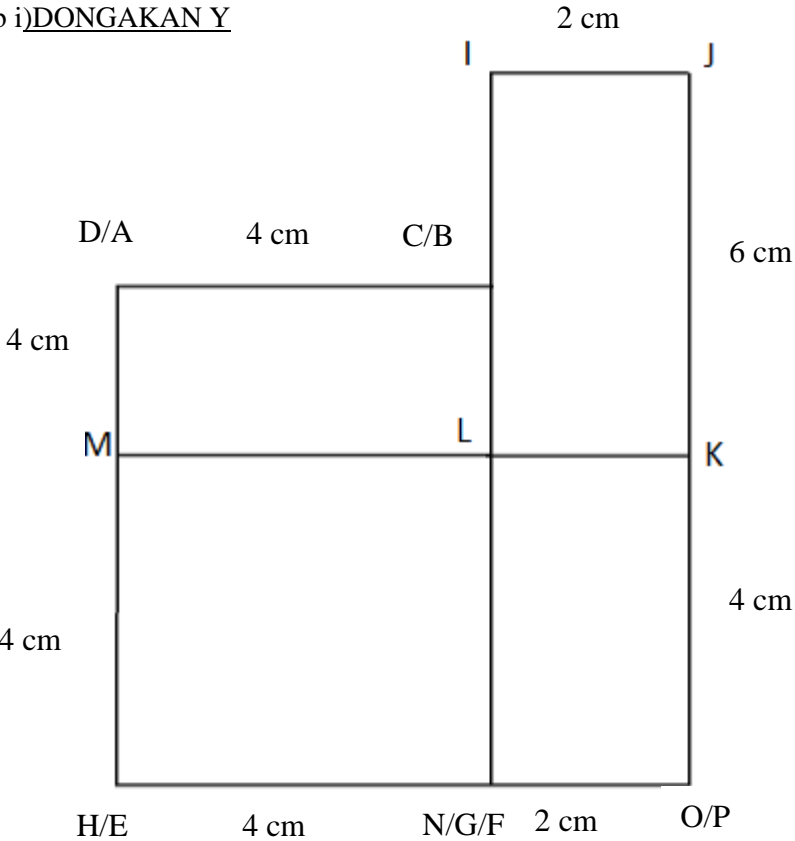
No	Peraturan Pemarkahan	Markah	
9 (a) (b)(i) (ii)	$X = \frac{5}{10} \quad Y = PM$ $\left(\frac{2}{10} \times \frac{4}{22}\right)$ $\frac{2}{55}$ $\left(\frac{10}{22} \times \frac{9}{21}\right)$ $\frac{15}{77}$	P1P1 K1 N1 K1 N1	6
10 a) b) c)	 <p data-bbox="363 1305 502 1339">Laju purata</p> $= \frac{78}{140}$ $= \frac{39}{70} \text{ km j}^{-1}$ <p data-bbox="363 1599 603 1632">80 minutes/80 minit</p>	P1P1 K1 N1 N1	5

No	Peraturan Pemarkahan	Markah		
11	$P - Q = 4$ $P + Q = 24$ $\begin{pmatrix} 1 & -1 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} P \\ Q \end{pmatrix} = \begin{pmatrix} 4 \\ 24 \end{pmatrix}$ $\begin{pmatrix} P \\ Q \end{pmatrix} = \frac{1}{1(1) - 1(-1)} \begin{pmatrix} 1 & 1 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} 4 \\ 24 \end{pmatrix} @ setara$ $\begin{pmatrix} P \\ Q \end{pmatrix} = \frac{1}{2} \begin{pmatrix} 1(4) & +4(24) \\ (-1)4 & +1(24) \end{pmatrix} @ setara$ <p>(jalan kerja yang mesti ditunjukkan)</p> $\begin{pmatrix} P \\ Q \end{pmatrix} = \begin{pmatrix} 14 \\ 10 \end{pmatrix}$ $P = 14 \text{ tahun}$ $Q = 10 \text{ tahun}$	P1 P1	P1 K1 N1 N1	6

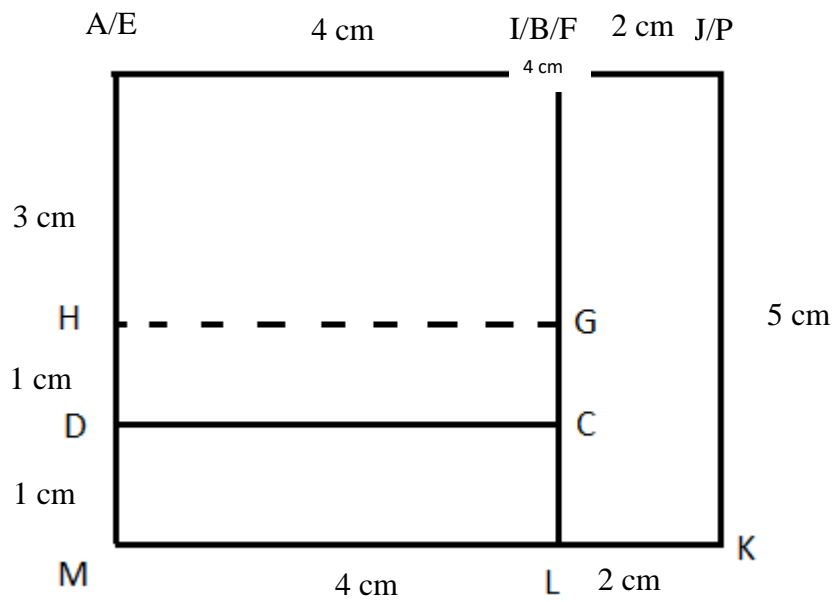
No	Peraturan Pemarkahan	Markah	
13	<p>a) i) (-2,0) ii) (-4,-4)</p> <p>b) i) P : Reflection in the line $x = 4$ <i>P</i> : Pantulan pada garis $x = 4$</p> <p>Q : Enlargement with scale factor of 3 about centre (1, 5)@Q <i>Q</i> : Pembesaran dengan faktor skala 3 pada pusat (1, 5)@Q</p> <p>ii) Area of image <i>Luas imej</i> $= (3)^2 \times 270-270$ $= 2\ 160\ \text{cm}^2$</p>	<p>P2 P2</p> <p>P2</p> <p>P3</p> <p>K1K1</p> <p>N1</p>	12
14(a)	<p>i)(156-159)</p> <p>ii)Estimated mean of the distance <i>Min anggaran jarak</i></p> $\frac{141.5(2) + 145.5(5) + 149.5(6) + 153.5(8) + 157.5(9) + 161.5(7) + 165.5(3)}{40}$ $\frac{6180}{40}$ $= 154.5$	<p>P1</p> <p>K2</p> <p>N1</p>	12

No	Peraturan Pemarkahan					Markah																																								
(b)	<table border="1"> <thead> <tr> <th>Height (cm) <i>Ketinggian</i> (cm)</th> <th>Frequency <i>Kekerapan</i></th> <th>Midpoint <i>Titik</i> <i>Tengah</i></th> <th>Upper boundary (cm) <i>Sempadan</i> <i>atas</i> (cm)</th> <th>Cumulative Frequency <i>Kekerapan</i> <i>Longgokan</i></th> </tr> </thead> <tbody> <tr> <td>140 – 143</td> <td>2</td> <td>141.5</td> <td>143.5</td> <td>2</td> </tr> <tr> <td>144 – 147</td> <td>5</td> <td>145.5</td> <td>147.5</td> <td>7</td> </tr> <tr> <td>148 – 151</td> <td>6</td> <td>149.5</td> <td>151.5</td> <td>13</td> </tr> <tr> <td>152 – 155</td> <td>8</td> <td>153.5</td> <td>155.5</td> <td>21</td> </tr> <tr> <td>156 – 159</td> <td>9</td> <td>157.5</td> <td>159.5</td> <td>30</td> </tr> <tr> <td>160 – 163</td> <td>7</td> <td>161.5</td> <td>163.5</td> <td>37</td> </tr> <tr> <td>164 – 167</td> <td>3</td> <td>165.5</td> <td>167.5</td> <td>40</td> </tr> </tbody> </table>	Height (cm) <i>Ketinggian</i> (cm)	Frequency <i>Kekerapan</i>	Midpoint <i>Titik</i> <i>Tengah</i>	Upper boundary (cm) <i>Sempadan</i> <i>atas</i> (cm)	Cumulative Frequency <i>Kekerapan</i> <i>Longgokan</i>	140 – 143	2	141.5	143.5	2	144 – 147	5	145.5	147.5	7	148 – 151	6	149.5	151.5	13	152 – 155	8	153.5	155.5	21	156 – 159	9	157.5	159.5	30	160 – 163	7	161.5	163.5	37	164 – 167	3	165.5	167.5	40					
Height (cm) <i>Ketinggian</i> (cm)	Frequency <i>Kekerapan</i>	Midpoint <i>Titik</i> <i>Tengah</i>	Upper boundary (cm) <i>Sempadan</i> <i>atas</i> (cm)	Cumulative Frequency <i>Kekerapan</i> <i>Longgokan</i>																																										
140 – 143	2	141.5	143.5	2																																										
144 – 147	5	145.5	147.5	7																																										
148 – 151	6	149.5	151.5	13																																										
152 – 155	8	153.5	155.5	21																																										
156 – 159	9	157.5	159.5	30																																										
160 – 163	7	161.5	163.5	37																																										
164 – 167	3	165.5	167.5	40																																										
	<p>Lajur 1 , semua titik tengah betul Lajur 2 , semua sempadan atas betul dari baris 2 hingga baris 6. Lajur 3 , semua kekerapan longgokan betul</p>					P1 P1 P2																																								
(c)	<p>Skala seragam dengan paksi mengufuk ,($0 \leq x \leq 167.5$) dan paksi mencancang ,($0 \leq y \leq 40$) Semua 7 titik diplot dengan skala yang seragam. Graf ogif dilukis dengan licin .</p>					P1 K2 N1																																								
(d)	154					N1																																								

No	Peraturan Pemarkahan	Markah
15	<p data-bbox="411 259 663 293">a) <u>DONGAKAN X</u></p> <div data-bbox="523 376 1082 1014" style="text-align: center;"> <p>The diagram shows a rectangular block divided into two parts by a horizontal line. The top part has a height of 3 cm and is labeled D/A on the left and C/B on the right. The bottom part has a height of 4 cm and is labeled H/E on the left and G/F on the right. The horizontal line is labeled M on the left and L on the right. The width of the block is labeled 4 cm at the bottom.</p> </div> <p data-bbox="392 1066 1225 1128">Bentuk betul dengan segiempat tepat DMLC dan segiempat tepat MHGL semua garis penuh.</p> <p data-bbox="392 1171 740 1200">$DM = CL = MH = HG = GL = DC$</p> <p data-bbox="392 1249 1174 1279">Semua ukuran betul ± 0.2 cm dan sudut dibucu segi empat tepat $90^\circ \pm 1^\circ$</p>	<p data-bbox="1289 1066 1326 1095">K1</p> <p data-bbox="1289 1171 1326 1200">K1</p> <p data-bbox="1289 1238 1326 1267">N1</p>

No	Peraturan Pemarkahan	Markah
	<p data-bbox="363 259 608 293">b i) <u>DONGAKAN Y</u></p>  <p data-bbox="400 1126 884 1160">Bentuk betul dengan empat segiempat tepat .</p> <p data-bbox="400 1216 884 1249">IJ=NO < IB=DM < DC =MH = HN =OK < KJ</p> <p data-bbox="392 1283 1171 1317">Semua ukuran betul ± 0.2 cm dan sudut dibucu segi empat tepat $90^\circ \pm 1^\circ$</p>	<p data-bbox="1289 1137 1326 1171">K1</p> <p data-bbox="1289 1238 1326 1272">K1</p> <p data-bbox="1289 1305 1326 1339">N2</p>

bii) PELAN



Bentuk betul dengan segiempat tepat ADCI, DMLC, dan ILKJ.
Semua garis penuh.

HG diwakili dengan garisan putus-putus

$HD=DM=LC=CG < LK=IJ < AH < AI < JK$

Semua ukuran betul ± 0.2 cm dan sudut dibucu segi empat tepat $90^\circ \pm 1^\circ$

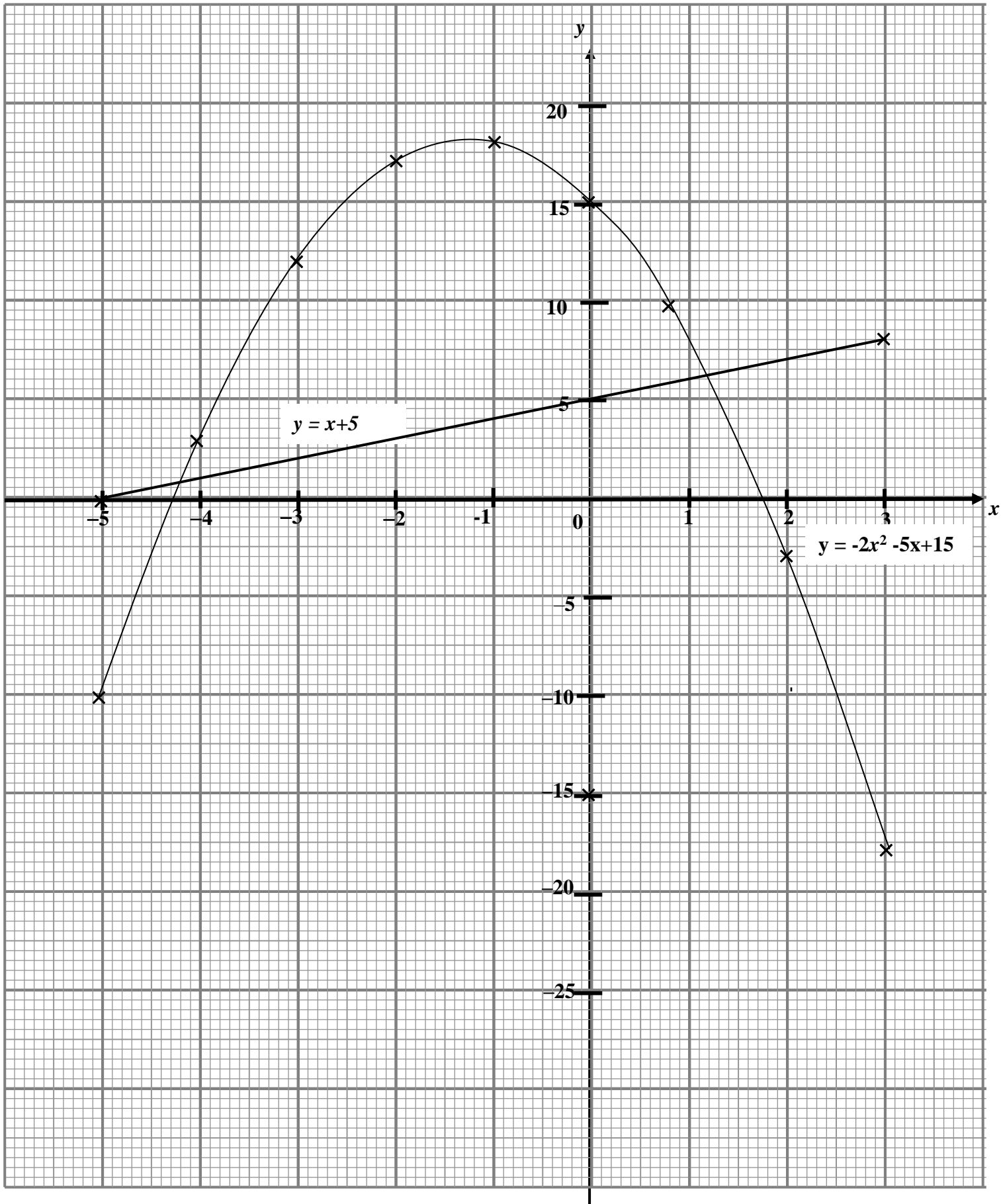
K1

K1

K1

N2

12



Graph for Question 14

