

PERATURAN PEMARKAHAN ADDITIONAL MATHEMATICS
KERTAS 2

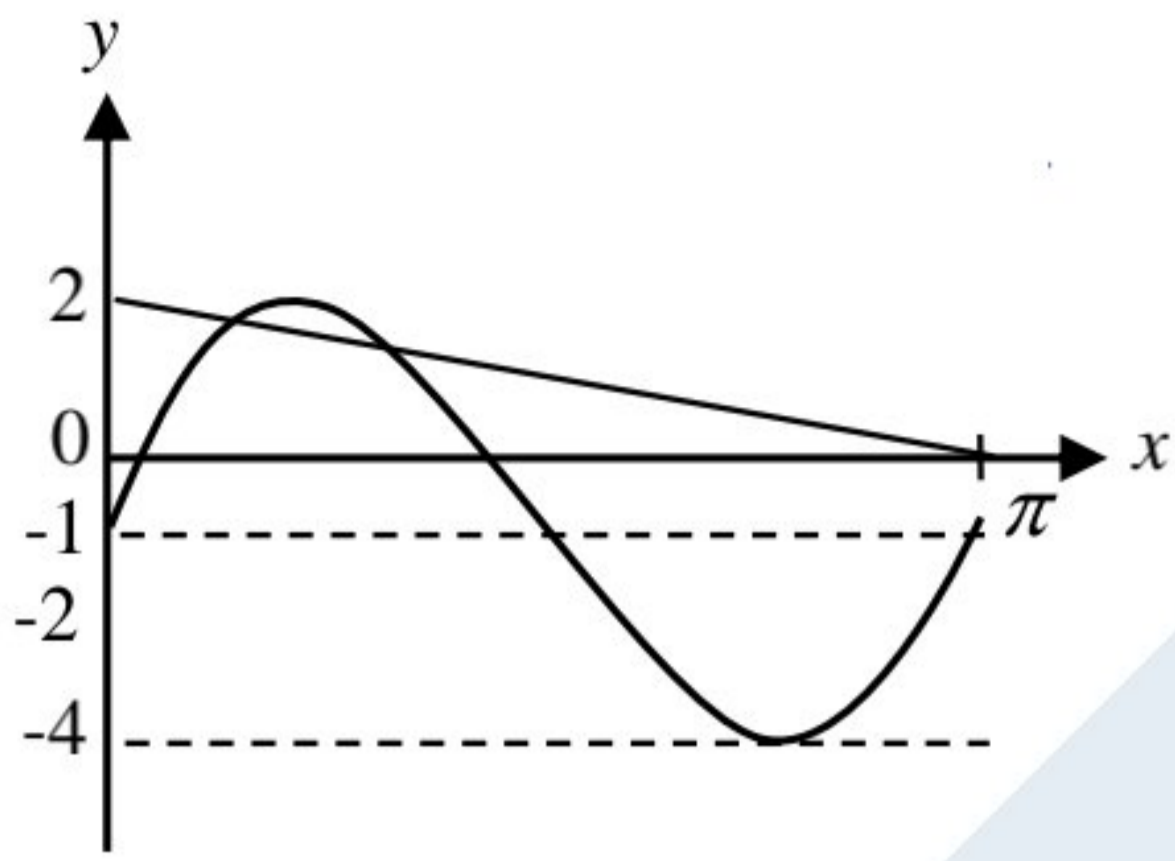
No.	PERATURAN PEMARKAHAN	Σ MARKAH	
1	$p = 2 - 2q$ $\frac{1}{(2 - 2q) - 1} = 1 + \frac{1}{q}$ $2q^2 + 2q - 1 = 0$ $\frac{-2 \pm \sqrt{(2)^2 - 4(2)(-1)}}{2(2)}$ $q = 0.3660, -1.366$ $p = 1.268, 4.732$	<p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>N1</p>	5
2	<p>(a) Kiri $\frac{\log_4 \left(\frac{m}{n}\right)}{\log_4 2}$</p> <p>$= (\log_2 4)(\log_4 m - \log_4 n)$</p> <p>$= \frac{(\log_4 m - \log_4 n)}{\left(\frac{1}{2}\right)}$</p> <p>(b) gantikan $\log_4 n = 5 \log_4 m$</p> <p>$2 \log_4 m - 2(5 \log_4 m) = 8$</p> <p>$m = \frac{1}{4}$</p> <p>$\log_4 n = 5(-1)$</p> <p>$n = \frac{1}{1024}$</p>	<p>P1 atau Kanan $2\left(\frac{\log_2 m}{\log_2 4}\right) - 2\left(\frac{\log_2 n}{\log_2 4}\right)$</p> <p>K1 atau $(\log_2 m - \log_2 n)$ K1N1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	7

No.	PERATURAN PEMARKAHAN	Σ MARKAH
3	<p>(a) $5\pi, 9\pi, 13\pi$ and $d = 4\pi$ P1</p> <p>$5\pi + (n - 1)(4\pi) = 121\pi$ K1</p> <p>$n = 30$ N1</p> <p>(b) $5 + (n - 1)(4) = 145$ K1</p> <p>$n = 36$ N1</p> <p>$S_{36} = \frac{36}{2} [2(5\pi) + 35(4\pi)]$ or $\frac{36}{2}(5\pi + 145\pi)$ K1</p> <p>$= 2700\pi$ N1</p>	7

No.	PERATURAN PEMARKAHAN	Σ MARKAH
4	<p>(a) $36x^2h = 5832$ K1</p> $h = \frac{162}{x^2}$ N1 $A = 4(6xh) + (6x)^2 + 4 \times \frac{1}{2} \times 6x \times 5x$ K1 $A = 96x^2 + \frac{3888}{x^2}$ N1 <p>(b) $\frac{dA}{dx} = 192x - \frac{3888}{x^2}$ K1</p> $\frac{dx}{dt} = 0.06$ $\frac{dA}{dx} = 192(3) - \frac{3888}{9}$ $\frac{dA}{dt} = \frac{dA}{dx} \times \frac{dx}{dt}$ $= 144 \times 0.06$ K1 $8.64 \text{ cm}^2 \text{ s}^{-1}$ N1	7

No.	PERATURAN PEMARKAHAN	Σ MARKAH
5	<p>(a) $\angle POR = 120^\circ$ $= \frac{2\pi}{3}$ rad N1</p> <p>(b) $s = r \left(\frac{2\pi}{3} \right)$ $r = \frac{3s}{2\pi}$ K1 N1</p> <p>(c) Luas sektor $QRO = \frac{1}{2} (115)^2 (1.047) = 6\,923.29 \text{ cm}^2$ atau Luas sektor $ORP = \frac{1}{2} (115)^2 (2.094) = 13\,846.58 \text{ cm}^2$ K1</p> <p>Luas $\Delta OQR = \frac{1}{2} (115)(115) \sin 60^\circ$ atau Luas $= \frac{1}{2} \times 115 \times 99.5929$ K1 $= 5\,726.59 \text{ cm}^2$</p> <p>Luas kawasan berwarna merah/berlorek $=$ Luas sektor $ORP -$ Luas tembereng atau Luas sektor $ORP - ($Luas sektor $QRO -$ Luas $\Delta OQR)$ $= 13\,846.58 - (6\,923.29 - 5\,726.59)$ K1 $= 12\,649.88 \text{ cm}^2$ N1</p>	7

No.	PERATURAN PEMARKAHAN	Σ MARKAH
6	<p>(a) Guna hukum segi tiga</p> <p style="text-align: right;">K1</p> $\vec{AC} = \vec{AO} + \vec{OC}$ $= -\underline{a} + \underline{b}$ <p style="text-align: right;">N1</p> $\vec{AB} = -\underline{a} + 4\underline{b}$ <p style="text-align: right;">N1</p> <p>(b)</p> $\vec{OE} = \vec{OA} + \vec{AE}$ <p>(i)</p> $= \underline{a} + \frac{2}{3}(-\underline{a} + \underline{b})$ $= \frac{1}{3}(\underline{a} + 2\underline{b})$ <p style="text-align: right;">K1</p> $\vec{OD} = \vec{OA} + \vec{AD}$ $= \underline{a} + \frac{1}{3}(-\underline{a} + 4\underline{b})$ $= \frac{2}{3}(\underline{a} + 2\underline{b})$ $= 2OE$ <p style="text-align: right;">K1</p> <p>OD = 2OE ;</p> <p style="text-align: right;">N1</p> <p>(ii) OE : OD = 1 : 2</p> <p style="text-align: right;">N1</p>	7

No.	PERATURAN PEMARKAHAN	Σ MARKAH
7	<p>(a)</p>  <p>shape (sine) P1</p> <p>Amplitude P1</p> <p>1 cycle $0 \leq x \leq \pi$ P1</p> <p>shifted P1</p> <p>(b) $y = 2 - \frac{2x}{\pi}$ N1</p> <p>Sketch the straight line (gradient or y-intercept) K1</p> <p>No of solutions = 2 N1</p> <p>(c) $2 \sin 2x + 1 = 0$ or equivalent P1</p> <p>$2x = 210^\circ, 330^\circ, 570^\circ, 690^\circ$ K1</p> <p>$x = 105^\circ, 165^\circ, 285^\circ, 345^\circ$ N1</p>	<p>10</p>

No.	PERATURAN PEMARKAHAN	Σ MARKAH
8	<p>(a) Selesaikan $x^2 - 3x = x$ K1</p> <p>$M(4,4)$ N1</p> <p>(b) $\int_0^4 x \, dx$ atau $L_1 = \frac{1}{2}(4)(4)$ K1 (mencari luas segitiga)</p> <p>$\frac{x^3}{3} - \frac{3x^2}{2}$ K1 (untuk kamiran)</p> <p>$L_2 = \left[\frac{x^3}{3} - \frac{3x^2}{2} \right]_3^4$ atau</p> <p>$L_3 = \left[\frac{x^3}{3} - \frac{3x^2}{2} \right]_0^3$ K1 (menggantikan had)</p> <p>$(L_1 - L_2) + L_3$ K1</p> <p>$\frac{32}{3} \text{ unit}^2$ N1</p> <p>(c) $V = \frac{\pi}{2} \int_0^3 (x^2 - 3x)^2 \, dx$ P1 terima $V = \pi \int_0^3 (x^2 - 3x)^2 \, dx$</p> <p>$= \pi \left[\frac{x^5}{5} - \frac{6x^4}{4} + 3x^3 \right]_0^3$ K1</p> <p>$= \frac{81}{20} \pi$ N1</p>	10

No.	PERATURAN PEMARKAHAN	Σ MARKAH
9	Graf Linear Law	10



No.	PERATURAN PEMARKAHAN	Σ MARKAH
10	<p>(a)(i) $C = \left(\frac{3(12) + 2(0)}{5}, \frac{3(5) + 2(0)}{5} \right)$ K1</p> <p>$= \left(\frac{36}{5}, 3 \right)$ N1</p> <p>(ii) $m = \frac{1}{7}$ P1</p> <p>$y - 5 = \frac{1}{7}(x - 12)$ or equivalent OR $c = \frac{23}{7}$ K1</p> <p>$y = \frac{1}{7}x + \frac{23}{7}$ N1</p> <p>(iii) $\frac{1}{2} 0(3) + (-2)(5) + 12(0) - (-2)(0) - 12(3) - 0(5)$ K1</p> <p>23 N1</p> <p>(b) $PB = 2PA$ P1</p> <p>$\sqrt{(x-12)^2 + (y-5)^2} = 2\sqrt{(x-(-2))^2 + (y-3)^2}$ K1 utk jarak PB atau PA</p> <p>$3x^2 + 3y^2 + 40x - 14y - 117 = 0$ N1</p>	10

No.	PERATURAN PEMARKAHAN	Σ MARKAH
11	<p>(a) $\bar{x} = 37.6$ P1</p> $\sigma = \sqrt{\frac{3(26.5)^2 + 5(30.5)^2 + 9(34.5)^2 + 10(38.5)^2 + 7(42.5)^2 + 6(46.5)^2}{40} - (37.6)^2}$ <p style="text-align: right;">K1 (accept for σ^2)</p> <p>5.83 N1</p> <p>(b) $L_3 = 40.5$ or $F = 27$ or $f = 7$ P1</p> $Q_3 = 40.5 + \left[\frac{30 - 27}{7} \right] (4)$ <p style="text-align: right;">K1 (guna formula)</p> <p>= 42.21 N1</p> <p>(c) (i) $2(37.6) - c = 70.2$ K1</p> <p>$c = 5$ N1</p> <p>(ii) $2^2(33.99)$ or $(2(5.83)^2)$ or $(11.66)^2$ K1</p> <p>135.96 N1</p>	10

No.	PERATURAN PEMARKAHAN	Σ MARKAH
12	(a) (i) $\frac{106(5)+103(6)+102(3)+101(2)+104(4)}{5+6+3+2+4}$	K1
	103.6	N1
	(ii) $\frac{110(5)+105(6)+104(3)+102(2)+121(4)}{5+6+3+2+4}$	K1
	109	N1
	(b) $P_{15} = 5000$	P1
	$\frac{x}{5000} \times 100 = 102$	K1
	$x = 5100$	N1
	(c) $\frac{520}{x} \times 100 = 104$ OR $\frac{y}{500} \times 100 = 102$	K1
	$x = 500$ or $y = 510$	N1
	Tambahan bil air = RM10	N1
10		

No.	PERATURAN PEMARKAHAN	Σ MARKAH
13	(a) (i) $\angle ADC = 157.38^\circ$ P1	10
	$AC^2 = 13^2 + 10^2 - 2(13)(10)\cos 157.38^\circ$ K1	
	$AC = 22.595 \text{ or } 22.60$ N1	
	(ii) $\frac{14}{\sin 30^\circ} = \frac{*22.60}{\sin \angle ABC}$ K1	
	$\angle ABC = 53.82^\circ$ N1	
	(b) Area $\triangle ABC = \frac{1}{2} \times *22.60 \times 14 \times \sin 96.18^\circ$ K1 P1 (96.18^\circ)	
	$= 157.28 \text{ cm}^2$	
	Area $\triangle ADC = \frac{1}{2} \times 15 \times 8 \times \frac{5}{13}$ K1	
	$= \frac{300}{13} \text{ cm}^2$	
	Difference $= 157.28 - \frac{300}{13} \text{ cm}^2$ K1 (menolak)	
$= 134.20 \text{ cm}^2$ N1		