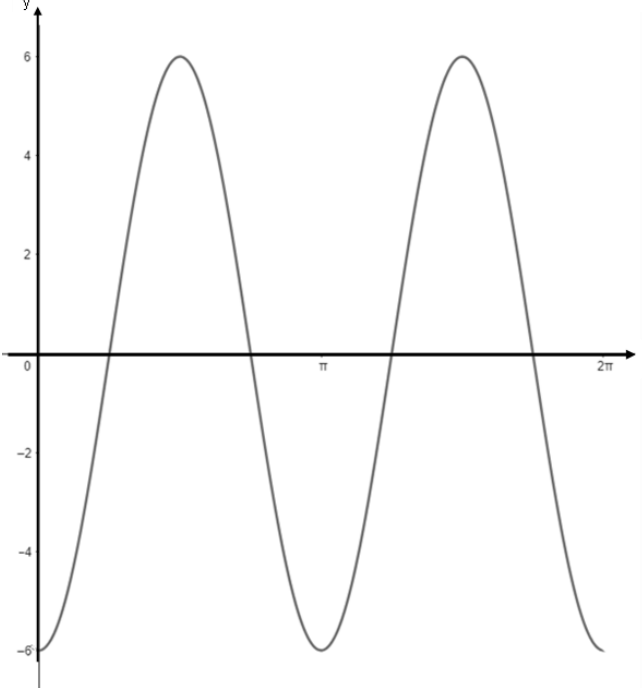


Peraturan Pemarkahan Ujian Diagnostik 3 Tingkatan 5 Matematik Tambahan
(Kertas 2 / 2024)

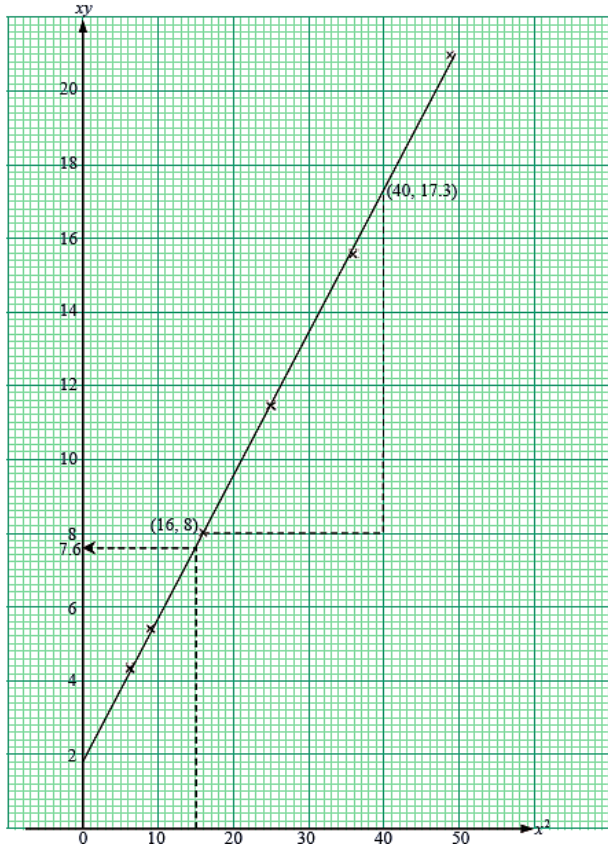
NO SOALAN	KETERANGAN	MARKAH	Jumlah Markah
1	$x = \frac{1-2y}{3}$ atau $y = \frac{1-3x}{2}$ $3\left(\frac{1-2y}{3}\right) + y^2 - 16 = 0$ atau $3x + \left(\frac{1-3x}{2}\right)^2 = 16$ $(y-5)(y+3) = 0$ atau $(x+3)(3x-7) = 0$ $y = 5, y = -3$ atau $x = -3, x = \frac{7}{3}$ $x = -3, x = \frac{7}{3}$ atau $y = 5, y = -3$ $A(-3,5)$ dan $B\left(\frac{7}{3}, -3\right)$	1 1 1 1 1 1	6
2(a)	$f(x) = x^2 - 6kx + \left(\frac{-6k}{2}\right)^2 - \left(\frac{-6k}{2}\right)^2 + 10k^2 + 1$ $(x-3k)^2 + k^2 + 1$ $r^2 + 2k = k^2 + 1$ $r = k - 1$	1 1 1 1	8
(b)	$r^2 - 1 = 3k$ ATAU $3(r+1) = r^2 - 1$ $k(k-5) = 0$ $(r-4)(r+1) = 0$ $k = 0, k = 5$ $r = 4, r = -1$ $r = 4, r = -1$ $k = 0, k = 5$	1 1 1 1	
3(a)	$n = \frac{2}{3}$	1	8
(b)	$f^2(x) = p(px+q) + q$ $p = 2$ dan $q = 3$	1 1	
(c)	(i) $a(4) - 2 = 22$ atau $\frac{12}{2-b} = 12$ $a = 6$ $b = 1$ (ii) $gf(x) = \frac{12}{(6x-2)-1}$ $gf(x) = \frac{4}{2x-1}, x \neq \frac{1}{2}$	1 1 1 1 1	

4 (a)	$T_1 = \frac{1}{2}(k)(k)$, $T_2 = \frac{1}{2}(k+1)(k)$ dan $T_3 = \frac{1}{2}(k+2)(k)$	1	7
	$d = \frac{1}{2}(k+2)(k) - \frac{1}{2}(k+1)(k)$ atau $d = \frac{1}{2}(k+1)(k) - \frac{1}{2}(k)(k)$	1	
	$T_3 - T_2 = T_2 - T_1 = \frac{1}{2}k$ dan luas segitiga itu mengikut janjang aritmetik dengan beza sepunya $= \frac{1}{2}k$	1	
	$\frac{n}{2}[2(8) + (n-1)(2)]$	1	
	$7n + n^2$	1	
(b)	$\frac{n}{2}[0.5 + 4] = 45$	1	
	$n = 20$	1	
5 (a)	$\frac{dV}{dh} = \pi(8h - h^2)$ atau setara	1	7
	$3\pi = \pi\left(8\left(\frac{3}{2}\right) - \left(\frac{3}{2}\right)^2\right) \times \frac{dh}{dt}$	1	
	$\frac{dh}{dt} = \frac{4}{13}$	1	
(b)	$\delta h = -0.05$	1	
	$\frac{dr}{dh} = \left(\frac{1}{2}(8h - h^2)^{-\frac{1}{2}}\right)(8 - 2h)$	1	
	$\delta r = \frac{4 - 1}{\sqrt{8(1) - 1^2}} \times -0.05$	1	
	-0.05669	1	
6(a)	$\tan \angle CAB = \frac{11}{5}$	1	
	$\angle CAD = 2.288$	1	
(b)	$\angle CBD = \pi - 2.288$ atau 0.854	1	7
	$\left[\frac{1}{2}(5)^2(2.288) - \frac{1}{2}(5^2)\sin 2.288\right] + \left[\frac{1}{2}(11)^2(0.854) - \frac{1}{2}(11^2)\sin 0.854\right]$	1,1,1	
	25.23	1	

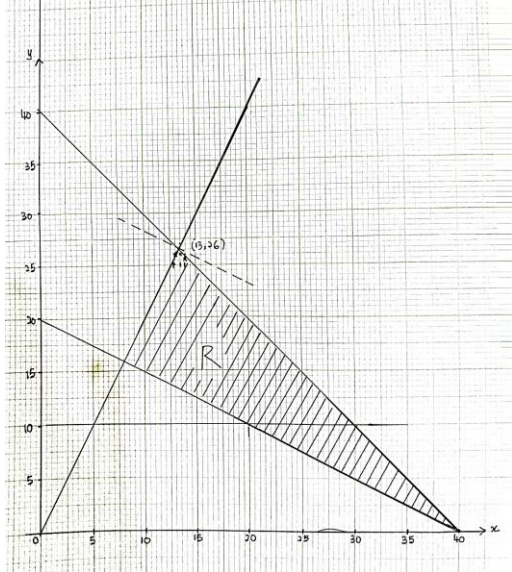
7(a)	$\frac{1 - \cos^2 \theta}{1 - \cos \theta}$ $\frac{(1 - \cos \theta)(1 + \cos \theta)}{1 - \cos \theta}$ $1 + \cos \theta \text{ (sebelah kiri)}$	1 1 1	7
(b)	 Bentuk graf kos x 2 kitaran Amplitud 6 dan -6 Pantulan pada paksi-x	1 1 1 1	
8 (a)	i) $(4(2) - 5)(2p - 3) = -1$ $p = \frac{4}{3}$ $y_{\square} = 2x^2 - 5x + c$ $3 = 2(2)^2 - 5(2) + c$ $y_{\square} = 2x^2 - 5x + 5$	1 1 1 1 1	
(b)	$\pi \left[\frac{x^2}{2} + 6x \right]_3^k$ $\pi \left[\left(\frac{k^2}{2} + 6k \right) - \left(\frac{(3)^2}{2} + 6(3) \right) \right]$ $\frac{1}{3} \pi (3)^2 (k - 3)$ $\pi \left[\left(\frac{k^2}{2} + 6k \right) - \left(\frac{(3)^2}{2} + 6(3) \right) \right] - \frac{1}{3} \pi (3)^2 (k - 3)$ $k = 8$	1 1 1 1 1	10

9	$PS = PQ$	1	10
(a) i	$\sqrt{(x - (-1))^2 + (y - 3)^2} = \sqrt{(-1 - 3)^2 + (3 - 0)^2}$ $x^2 + y^2 + 2x - 6y - 15 = 0$	1 1 1	
(a) ii	$(-4)^2 + m^2 + 2(-4) - 6m - 15 = 0$ dan selesaikan persamaan $m = -1, m = 7$	1 1	
(b)	$-\frac{3}{4} \times m_{QT} = -1$ $y - 0 = \frac{4}{3}(x - 3)$ $T(0, -4)$ $\frac{1}{2} [0(0) + 3(3) + (-1)(-4)] - [3(-4) + 1(0) + 0(3)] $ 12.5 atau setara	1 1 1 1 1	10
10 (a)	$\sqrt{500 \times 0.1 \times 0.9}$ 6.708	1 1	
(b)	i) $P(Z > \frac{300-260}{35})$ 0.1265 ii) $1 - P(Z > 1.714) - P(Z \geq 1.143)$ dan $1 - 0.0432 - 0.1265$ 600×0.8303 498	1 1 1 1 1	
(c)	Lihat skor-z = 2.326 $\frac{k-260}{35} = -2.326$ $k = 179$	1 1 1	



11 (a)	<table><tr><td>x^2</td><td>6.25</td><td>9</td><td>16</td><td>25</td><td>36</td><td>49</td></tr><tr><td>xy</td><td>4.38 / 4.375</td><td>5.4</td><td>8</td><td>11.5</td><td>15.6</td><td>21</td></tr></table>	x^2	6.25	9	16	25	36	49	xy	4.38 / 4.375	5.4	8	11.5	15.6	21	1	10
	x^2	6.25	9	16	25	36	49										
	xy	4.38 / 4.375	5.4	8	11.5	15.6	21										
		1															
	Kedua-dua paksi seragam dan satu titik diplot dengan betul dan *garis lurus penyuaian terbaik dilukis	1															
Semua titik diplot dengan betul.	1																
Garis lurus penyuaian terbaik.	1																
(b) i	$y = *1.7$ $xy = \frac{q}{p}x^2 + p$ $\frac{q}{p} = * \left(\frac{17.3 - 8}{40 - 16} \right)$ $p = 1.85 \leftrightarrow 1.95$ $q = 0.71 \leftrightarrow 0.76$	1 1 1 1 1	10														
12 (a)	$\sqrt{12^2 + 5^2}$ 13 cm	1 1															
(b)	$5^5 = 13^2 + 13^2 - 2(13)(13)\cos\angle BDC$ ($\angle BDC$ dilihat) 22.17°	1,1 1															
(c)	$\frac{1}{2}(13)(13)\sin 22.17^\circ$ 31.89	1 1															
(d)	4.330 $\tan \theta = \frac{4.330}{12}$ 19.84	1 1 1															

13 (a)	$\frac{P_{23}}{3.00} \times 100 = 140$	1	10
	4.20	1	
	$\frac{140(2m) + 135(3) + 120(1) + 130(m)}{2m + 3 + 1 + m} = 134.5$	1	
	$410m - 403.5m = 538 - 525$ $m = 2$	1 1	
(c)	$\frac{45}{P_{23}} \times 100 = 134.5$ 33.46	1 1	10
(d)	$\frac{125}{100} \times 130 = 162.5$	1	
	$\frac{140(4) + 135(3) + 120(1) + 162.5(2)}{4 + 3 + 1 + 2}$	1	
	141	1	
14(a)	$a = 6t - 9$ $a = -9$	1 1	10
(b)	$3t^2 - 9t + 6 = 0$ dan selesaikan persamaan $3t^2 - 9t + 6 = 0$ $t = 1, t = 2$	1 1	
(c)	$t = \frac{3}{2}$	1	
	$V_{min} = 3\left(\frac{3}{2}\right)^2 - 9\left(\frac{3}{2}\right) + 6$	1	
	$V_{min} = -\frac{3}{4}$	1	
(d)	$S = t^3 - \frac{9}{2}t^2 + 6t$ dan ganti $t = 1$ atau $t = 2$ atau $t = 6$ kepada * $S = t^3 - \frac{9}{2}t^2 + 6t$	1	10
	$*(2.5 - 0) + *(2.5 - 2) + *(90 - 2)$	1	
	91	1	

NO SOALAN	KETERANGAN	MARKAH
15(a)	$x + y \leq 40$	1
	$30x + 60y \geq 1200$	1
	$y \leq 2x$	1
(b)	 Lukis dengan betul sekurang-kurangnya satu garis lurus dari *ketaksamaan yang melibatkan x dan y. Lukis dengan betul semua *garis lurus dari *ketiga-tiga ketaksamaan. Rantau dilorek dengan betul.	1 1 1
(c)(i)	$20 \leq x \leq 30$	1
(ii)	$F = 30x + 60y$	1
	$F = 30(13) + 60(26)$ dan garis putus fungsi objektif dilukis	1
	1950	1