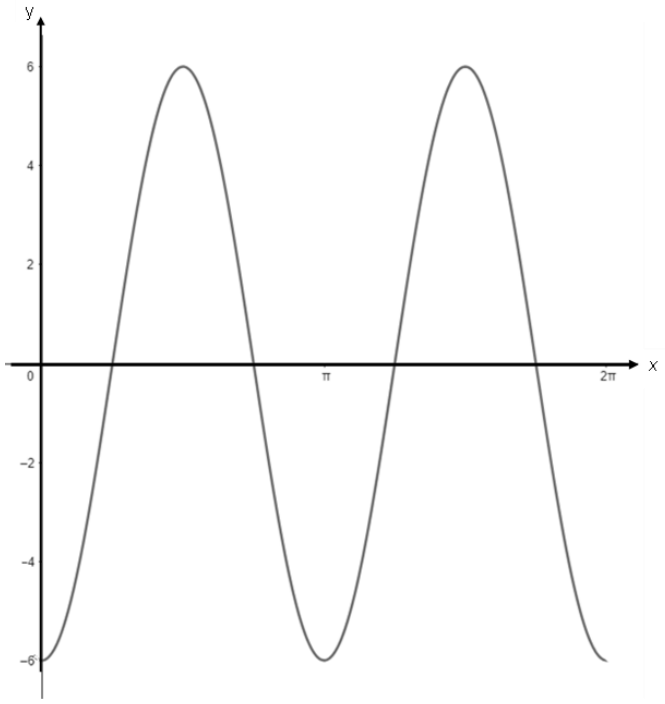
Peraturan Pemarkahan Ujian Diagnostik 3 Tingkatan 5 Matematik Tambahan

(Kertas 2 / 2024)

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

4 (a)	$T_1 = \frac{1}{2}(k)(k)$, $T_2 = \frac{1}{2}(k+1)(k)$ dan $T_3 = \frac{1}{2}(k+2)(k)$ $d = \frac{1}{2}(k+2)(k) - \frac{1}{2}(k+1)(k)$ *atau* $d = \frac{1}{2}(k+1)(k) - \frac{1}{2}(k)(k)$ $T_3 - T_2 = T_2 - T_1 = \frac{1}{2}k$ dan luas segitiga itu mengikut janjang aritmetik dengan beza sepunya $= \frac{1}{2}k$ $\frac{n}{2}[2(8) + (n-1)(2)]$ $7n + n^2$	1 1 1 1 1	**7**
(b)	$\frac{n}{2}[0.5 + 4] = 45$ $n = 20$	1 1	
5 (a)	$\frac{dV}{dh} = \pi\left(8h - h^2\right)$ atau setara $3\pi = \pi\left(8\left(\frac{3}{2}\right) - \left(\frac{3}{2}\right)^2\right) \times \frac{dh}{dt}$ $\frac{dh}{dt} = \frac{4}{13}$	1 1 1	**7**
(b)	$\delta h = -0.05$ $\frac{dr}{dh} = (\frac{1}{2}(8h - h^2)^{-\frac{1}{2}})(8 - 2h)$ $\delta r = \frac{4-1}{\sqrt{8(1) - 1^2}} \times -0.05$ -0.05669	1 1 1 1	
6(a)	tan ∠CAB = $\frac{11}{5}$ ∠CAD = 2.288	1 1	**7**
(b)	∠CBD = $\pi - 2.288$ atau 0.854 $\left[\frac{1}{2}(5)^2(2.288) - \frac{1}{2}(5^2)sin2.288\right] + \left[\frac{1}{2}(11)^2(0.854) - \frac{1}{2}(11^2)\sin 0.854\right]$ 25.23	1 1,1,1 1	

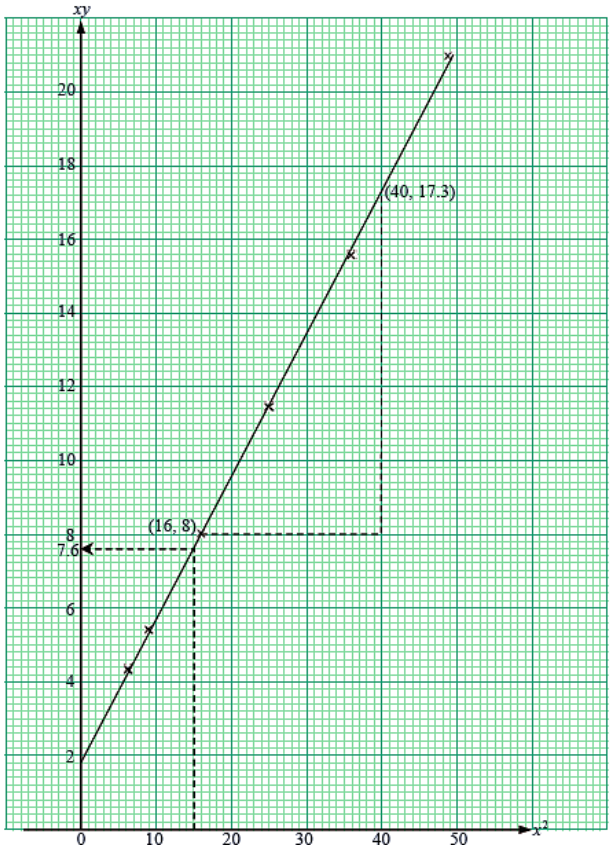
7(a)	$\frac{1-kos^2\theta}{1-kos\,\theta}$ $\frac{(1-kos\,\theta)(1+kos\,\theta)}{1-kos\,\theta}$ $1+kos\,\theta$ (sebelah kiri)	1 1 1	**7**
(b)	 Bentuk graf kos x 2 kitaran Amplitud 6 dan -6 Pantulan pada paksi-x	1 1 1 1	
8 (a)	i) $(4(2)-5)(2p-3)=-1$ $p=\frac{4}{3}$ $y_{\square}=2x^2-5x+c$ $3=2(2)^2-5(2)+c$ $y_{\square}=2x^2-5x+5$	1 1 1 1 1	**10**
(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	

9 **(a) i**	$PS = PQ$ $\sqrt{(x-(-1))^2+(y-3)^2} = \sqrt{(-1-3)^2+(3-0)^2}$ $x^2+y^2+2x-6y-15=0$	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	**10**
(c)	Lihat skor-z = 2.326 $\frac{k-260}{35}$ = −2.326 k = 179	1 1 1	

11 (a)			**10**
(b) i			
12 (a)			
(b)			
(c)			
(d)			

11 (a)

x^2	6.25	9	16	25	36	49
xy	4.38 / 4.375	5.4	8	11.5	15.6	21



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 — 1

$xy = \frac{q}{p}x^2 + p$ — 1

$\frac{q}{p} =* (\frac{17.3 - 8}{40 - 16})$ — 1

p = 1.85 ↔ 1.95 — 1

q = 0.71 ↔ 0.76 — 1

12 (a)

$\sqrt[2]{12^2 + 5^2}$ — 1

13 cm — 1

(b)

$5^5 = 13^2 + 13^2 - 2(13)(13)kos\angle BDC$ $(\angle BDC\ dilihat)$ — 1,1

22.17° — 1

(c)

$\frac{1}{2}(13)(13)\sin 22.17°$ — 1

31.89 — 1

(d)

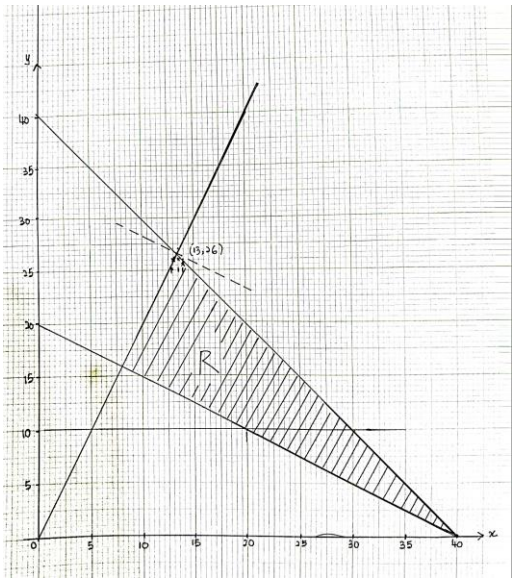
4.330 — 1

$\tan\theta^{\square} = \frac{4.330}{12}$ — 1

19.84 — 1

10

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