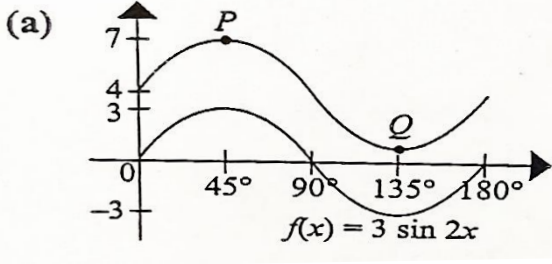


LATIHAN BERFOKUS SPM 2021
MPSM KELOMPOK M9

SKEMA PEMARKAHAN
MATEMATIK TAMBAHAN KERTAS 1

No. Soalan	Penyelesaian dan skema pemarkahan	Markah	Jumlah Markah
1	a) i) 35 ii) $f: x \rightarrow x^2 - 1$ atau setara b) $f^2(x) = m^2x + mn + n$ $m = 6$ $n = -3$	N1 N1 K1 N1 N1	2 3
2	a) $3[(-4) + h]^2 = 75$ $h = 9$ and $h = -1$ b) $HTP = -\frac{3}{5}$ $HDP = -\frac{1}{5}$ $5x^2 + 3x - 1 = 0$ or $x^2 + \frac{3}{5}x - \frac{1}{5} = 0$	K1 N1 K1 K1 N1	2 3
3	(a)  $p = 3$ $q = 4$ (b) $P(45^\circ, 7)$ $Q(135^\circ, 1)$	K1 N1 N1 N1 N1	 5
4	$S_n = 1404$ $\frac{n}{2}[2(12) + (n-1)16] = 1404$ $8n^2 + 4n - 1404 = 0$ ($\div 4$) $2n^2 + n - 351 = 0$ $(n-13)(2n+27) = 0$ $n = 13$ atau $n = -\frac{27}{2}$ (ditolak) $n = 13$	K1 K1 K1 N1 N1	 5

5	a) $m = \frac{3}{4}$ $c = -2$ $y = \frac{3}{4x^2} - \frac{2}{x}$ b) $y = px - qx^3 \rightarrow \frac{y}{x} = -qx^2 = p$ $m = -\frac{5}{4}$ $q = \frac{5}{4}$ $p = 5$	K1 K1 N1 K1 N1 N1	3 3
6	Harga burger = RM x Harga nasi lemak = RM y Harga sepotong kek = RM z $x + y + 2z = 25$ atau $2x + y + z = 20$ atau $x + 2y + z = 19$ $x - y = 1$ atau $y - z = -6$ *hapuskan z atau *hapuskan x $x = 4$ atau $y = 3$ atau $z = 9$ (*salah satu betul) Harga burger ialah RM4, harga nasi lemak ialah RM RM3 dan harga sepotong kek ialah RM9 (*ketiga-tiga nilai betul)	P1 K1 K1 N1 N1	5
7	(a) ${}^{13}C_2 = 78$ (b) bilangan tiga orang saling mengenali bersalaman antara satu sama lain $= {}^3C_2$ $= 3$ $78 - 3 = 75$	K1 N1 K1 N1 N1	2 3
8	a) $9 + r + r = 19$ $r = 5$ $\theta = 1.8$ rad $\theta = 103.12^\circ$ b) $\pi - 1.8 = 1.342$ $S = 5(1.342)$ Perimeter QOR = $5 + 5 + 6.71$ $= 16.71$ cm	K1 K1 N1 K1 N1	3 2

9	<p>a) $\sqrt{(x-(-2))^2+(y-1)^2} @ \sqrt{(x-4)^2+(y-3)^2}$</p> $\sqrt{(x-(-2))^2+(y-1)^2} = 2\sqrt{(x-4)^2+(y-3)^2}$ $3x^2 + 3y^2 - 36x - 22y + 95 = 0$ <p>(b) $3x^2 + 3(0)^2 - 36x - 22(0) + 95 = 0$ atau $3x^2 - 36x + 95 = 0$</p> $b^2 - 4ac = (36)^2 - 4(3)(95) = 156 > 0$ <p>Pergerakan Ravi menyentuh jalanraya pada dua tempat berbeza.</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>3</p> <p>3</p>
10	<p>a) $f(x) = \frac{5x^2}{x-3}$</p> $f'(x) = \frac{(x-3)(10x) - 5x^2(1)}{(x-3)^2}$ $= \frac{5x^2 - 30x}{(x-3)^2}$ $f'(1) = -\frac{25}{4}$ <p>b) $y = (5x - 1)^3$</p> $\frac{dy}{dx} = 15(5x - 1)^2$ $\frac{dy}{dt} = \frac{dy}{dx} \times \frac{dx}{dt}$ $= 15[5(1) - 1]^2 \times 4$ $= 960 \text{ unit s}^{-1}$	<p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>2</p> <p>3</p>
11	<p>a) $P(M \cap M' \cap M) + P(M' \cap M \cap M)$</p> $= 2\left(\frac{5}{9} \times \frac{4}{9} \times \frac{5}{9}\right)$ $= \frac{200}{729}$ <p>b) i) $P\left(\frac{60-70}{25} < Z < \frac{75-70}{25}\right)$</p> $P(-0.4 < Z < 0.2)$ $= 1 - 0.4207 - 0.3446$ $= 0.2347$	<p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>2</p>

	ii) $P\left(Z > \frac{100-70}{25}\right)$ $P(Z > 1.2) = 0.1151$ bilangan pekerja = 217	K1 N1	5
12	a) $\overrightarrow{BC} = \overrightarrow{BA} + \overrightarrow{AC}$ $= 2\underline{a} - 8\underline{b}$ b) $\overrightarrow{DB} = \frac{1}{4}\overrightarrow{AB}$ $= 2\underline{b}$ $\overrightarrow{BE} = \frac{1}{2}\overrightarrow{BC}$ $= \underline{a} - 4\underline{b}$ $AB = 4DB$ $\overrightarrow{DE} = \overrightarrow{DB} + \overrightarrow{BE}$ $= \underline{a} - 2\underline{b}$	K1 N1 K1 K1 N1	2 3
13	(a) $\log_3(3x+4) - 14\left(\frac{\log_3 x}{\log_3 9}\right) + 6\log_3 x = 2$ $\log_3(3x+4) - \log_3 x = 2$ $\log_3 \frac{(3x+4)}{x} = 2$ <i>atau setara</i> $\frac{(3x+4)}{x} = 9$ $x = \frac{2}{3}$ (b) $\frac{\sqrt{50} + \sqrt{18} + \sqrt{8}}{3}$ $\frac{5\sqrt{2} + 3\sqrt{2} + 2\sqrt{2}}{3}$ $\frac{10\sqrt{2}}{3}$	K1 K1 K1 K1 N1 K1 K1 N1	5 3

14	<p>(a) $m_{AB} = \frac{1}{2}$ $m_{AB} = -2$ $y = -2x + 8$ atau setara</p> <p>(b) $7x - 2(-2x + 8) = 39$ atau setara $(5, -2)$</p> <p>(c) $30 = \frac{1}{2} [1(8) + 5(y) + x(-2) + 5(6)] - [6(5) + 8(x) + y(5) + (-2)(1)]$ atau setara $7(7) - 2y = 39$ $(7, 5)$</p>	P1 K1 N1 K1 N1 K1 N1	3 2 3
15	<p>(a) $h(0) = -(0)^2 + 4(0) + 1.5$ $= 1.5$</p> <p>(b) $x = 2$ $h(2) = -(2)^2 + 4(2) + 1.5$ $= 5.5$</p> <p>(c) $-x^2 + 4x + 1.5 = 0$ $x = \frac{-4 \pm \sqrt{(4)^2 - 4(-1)(1.5)}}{2(-1)}$ or equivalent $= 4.35$</p>	K1 N1 K1 K1 N1 K1 K1 N1	8