

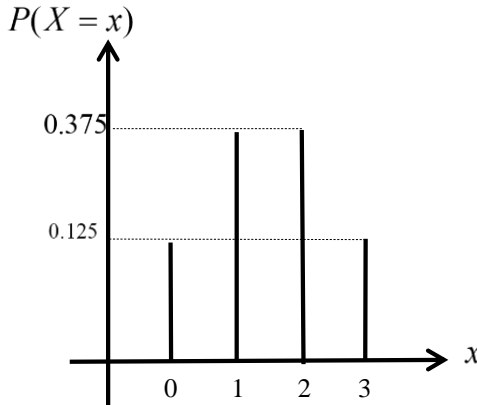
PERATURAN PEMARKAHAN PEPERIKSAAN PERCUBAAN SPM 2019

MATEMATIK TAMBAHAN KERTAS 1

NO	PENYELESAIAN / PERATURAN PEMARKAHAN	MARKAH SUB	MARKAH PENUH
1	$m^2 + \left(\frac{4}{5}\right)^2 = 1 \text{ or } k^2 + 8^2 = 10$ $k = \pm 6$ $m = \pm \frac{3}{5}$	1M 1M 1M	3
2	$k \begin{pmatrix} 4 \\ 5 \end{pmatrix} + \begin{pmatrix} -3 \\ 8 \end{pmatrix} = \lambda \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ $4k - 3 = 3h \text{ or } 5k + 8 = 4h$ $k = 36$	1M 1M 1M	3
3	$\frac{y}{x^3} = 2 + p \left(\frac{1}{x^3} \right)$ $0 = 2 + p \left(\frac{-1}{4} \right) \text{ or } \frac{2-0}{0 + \frac{1}{4}}$ $p = 8$	1M 1M 1M	3
4	(a) $2 \cos^2 50 - 1$ $2m^2 - 1$ (b) $m = 2 \cos^2 25 - 1$ $\sqrt{\frac{m+1}{2}} = \cos 25$	1M 1M 1M 1M	4

5	(a) $m = -1$ (b) $g(2) = -2(2) - 1 $ $= 5$	1M 1M 1M	3
6	(a) $12(3x - 2) - 8$ $= 36x - 32$ $a^2 = 36$ or $ab + b = -32$ (b) $a = -6$ and $b = \frac{32}{5}$	1M 1M 1M 1M	4
7	$\alpha + 2\alpha = -k$ or $\alpha(2\alpha) = 18$ $\alpha = \pm 3$ $k = \pm 9$	1M 1M 1M	3
8	$(-k)^2 - 4(1)(k + 3) > 0$ $(k - 6)(k + 2) > 0$ $k < -2$, $k > 6$	1M 1M 1M	3
9	(a) Different roots (b) $x^2 - (-1 + 7)x + (-1 + 7)$ or $(x + 1)(x - 7)$ $f(x) = -2x^2 + 12x + 14$ or $f(x) = -2(x - 3)^2 + 32$	1M 1M 1M	3
10	$(2p)^2 - 4(2)(3p + 8) < 0$ $(p + 2)(p - 8) < 0$ $-2 < p < 8$	1M 1M 1M	3
11	$\frac{1}{2} (0 + 2k - 20) - (-10 - 12 + 0) = 28$ $k = -19$ $\frac{1}{2} \times h \times \sqrt{(2 + 4)^2 + (3 + 19)^2} = 28$ $h = 2.456$	1M 1M 1M 1M	4

12	$\sqrt{(x-2)^2 + (y-0)^2} \text{ or } \sqrt{(x+3)^2 + (y-y)^2}$ $\sqrt{(x-2)^2 + (y-0)^2} = \sqrt{(x+3)^2 + (y-y)^2}$ $y^2 - 10x - 5 = 0$	1M 1M 1M	3
13	$(7 \cos x - 5) (2 \cos x - 1) = 0$ 44.42 or 60 315.58 and 300	1M 1M 1M	3
14	(a) 50 (b) $64.5 + \left(\frac{30-24}{12}\right) 10$ 69.5 Does not $56 < 69.5$	1M 1M 1M 1M	4
15	$\frac{1}{2} (8)^2 (68.5 \times \frac{\pi}{180}) \text{ or } \frac{1}{2} (6)^2 (68.5 \times \frac{\pi}{180})$ $\frac{1}{2} (8)^2 (68.5 \times \frac{\pi}{180}) \text{ tolak } \frac{1}{2} (6)^2 (68.5 \times \frac{\pi}{180})$ 16.74	1M 1M 1M	3
16	$n! = n \times (n-1) \times (n-2)! \text{ or}$ $(n-r)! = (n-r)(n-r-1)(n-r-2)!$ $2n = r + 1$ $n = \frac{r+1}{2}$	1M 1M 1M	3

17	<p> ${}^3C_0(0.5)^0(0.5)^3$ or ${}^3C_1(0.5)^1(0.5)^2$ or ${}^3C_2(0.5)^2(0.5)^1$ or ${}^3C_3(0.5)^3(0.5)^0$ </p> <p>0.125, 0.375, 0.375, 0.125 (all correct)</p> <p>one value of probability draw correctly</p> <p>All graph correct</p> 	<p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p>	4
----	--	---	---

21	$r = 3p + 4 \left(\frac{3}{p^2} \right)$ $3 - \frac{24}{p^3} = 0$ $p = 2 \text{ and } q = \frac{3}{4}$	1M 1M 1M	3
22	$\frac{dA}{dr} = 3\pi r - \frac{6\pi}{r^2}$ $8 \times \frac{4^2}{3\pi(4)^3 - 6\pi}$ $\frac{dr}{dt} = \frac{64}{93\pi}$	1M 1M 1M	3
23	<p>(a) $k(1)^2 - (1) = \frac{1}{5}$</p> $k = \frac{6}{5}$ <p>(b) $\frac{2x^3}{5} - \frac{x^2}{2} + c$</p> $y = \frac{2x^3}{5} - \frac{x^2}{2} - \frac{19}{10}$	1M 1M 1M 1M	4
24	$\frac{3x^3}{3}$ $22 - 8$ 14	1M 1M 1M	3

25	<p>(a) $T_n = 70\,000(1.1)^{n-1}$ or</p> $T_n = \frac{700000}{11} \left(\frac{11}{10}\right)^n$ <p>(b) $T_{10} = 70\,000(1.1)^{10-1}$ or</p> $T_{10} = \frac{700000}{11} \left(\frac{11}{10}\right)^{10}$ <p>165056</p>	1M 1M 1M	3
----	---	------------------------	---