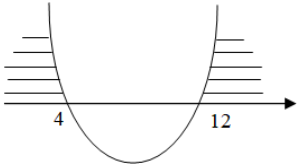


**MATEMATIK TAMBAHAN
KERTAS 1
PERATURAN PEMARKAHAN
PEPERIKSAAN PERCUBAAN
SPM 2019**

NO	SKEMA	MARKAH
1	(a) 6.284 cm B1 : (6×0.10473) or $(6 \times \frac{\pi}{3})$	2
	(b) 37.70cm^2 B1 : $\frac{1}{2}(6)^2(2.0947)$ or $\frac{1}{2}(6)^2(\frac{2\pi}{3})$	2
2	$k = 3$ B2 : $90\pi = 4\pi k^2 \times 2.5$ B1 : $\frac{dV}{dt} = 90\pi\text{cm}^3\text{s}^{-1}$ or $\frac{dr}{dt} = 2.5\text{cms}^{-1}$	3
3	$x^2 - \left(\frac{p^2+1}{p}\right)x + 1 = 0$ B2 : $SOR = \left(\frac{p^2+1}{p}\right)$ and $POR = 1$ (Both) B1 : $SOR = \left(\frac{p^2+1}{p}\right)$ OR $POR = 1$	3
4	$p \leq 4, p \geq 12$ B3 :  B2 : $(p-12)(p-4) \geq 0$ B1 : $x^2 + px + 4p - 12 = 0$ OR $p^2 - 4(1)(4p - 12) \geq 0$	4

5	$m = -4$ $n = -6$	1 1
6	<p>(a) $f(x) = (x - 4)^2 - 4$ B1: $f(x) = x^2 - 8x + 12$</p> <p>(b) $p = 12$</p> <p>(c) $x = 4$</p>	2 1 1
7	$a = 27$ B2: $\left(\begin{matrix} 1 \\ a^3 \end{matrix}\right)^3 = (3)^3$ B1: $a^{\frac{8}{15} - \frac{1}{5}}$	3
8	$x = 2.444$ B2: $\log_3 \left(\frac{36}{x-2} \right) = 2$ B1: $\log_3 6 - \frac{\log_3(x-2)}{\log_3 9} = 2$	3
9	$x = 1.547$ B2: $x \log 6 = \log 16$ atau $x(\log 2 + \log 3) = \log 4 + 2 \log 2$ B1: $\frac{2^x}{2^2} \cdot 3^x = 4$ atau $(x - 2) \log 2 + x \log 3 = \log 4$	3

10	<p>$n = 25$</p> <p>B2: $250 = \frac{n}{2} \left[\frac{32}{5} + \frac{68}{5} \right] @ \frac{68}{5} = \frac{32}{5} + (n-1) \left(\frac{3}{10} \right)$</p> <p>B1: $d = \frac{3}{10}$</p>	3
11	<p>$n = 152$</p> <p>B2: $20 \left[\frac{2(1-0.5^5)}{1-0.5} \right] = 2 + (n-1)0.5$</p> <p>B1: $p = 2$</p>	3
12	<p>8.30 pagi Selasa</p> <p>B3: $n = 51$</p> <p>B2: $1000(1.15)^{n-1} > 1000000$</p> <p>B1: $r = 1.15$</p>	4
13	<p>a) $\log_{10} y = -5 \log_{10} x + \log_{10} p$</p> <p>b) $p = 100$</p> <p>B1: $\log_{10} p = 2$</p>	1 2
14	<p>$p = 2 \text{ \& } q = 3$</p> <p>B3: $\frac{-2(q) + 8(p)}{p+q} = 2 \text{ or } \frac{4(q) + 14(p)}{p+q} = 8$</p> <p>B2: M(2,8)</p> <p>B1: $x+6 = -x+10$</p>	4
15	<p>(a) $\hat{d} = 10$</p> <p>B1: $\sqrt{6^2 + 8^2}$</p> <p>(b) $p = 5$</p> <p>B1: $\lambda = 2$</p>	2 2

16	<p>Luas = 6.283 cm^2 or $2 \pi \text{ cm}^2$</p> <p>B2: $\frac{1}{2}(7)^2(0.5236^*) - \frac{1}{2}(5)^2(0.5236^*)$ or $\frac{1}{2}(7)^2\left(\frac{\pi}{6}\right) - \frac{1}{2}(5)^2\left(\frac{\pi}{6}\right)$</p> <p>B1: $\frac{1}{2}(7)^2(0.5236^*)$ or $\frac{1}{2}(5)^2(0.5236^*)$ or $\frac{1}{2}(7)^2\left(\frac{\pi}{6}\right)$ or $\frac{1}{2}(5)^2\left(\frac{\pi}{6}\right)$</p>	3
17	<p>$\theta = 120^\circ$</p> <p>B3: $x = 60^\circ, 300^\circ$</p> <p>B2: $(2\cos x - 1)(2\cos x - 3) = 0$</p> <p>B1: $4(1 - \cos^2 x) + 8\cos x - 7 = 0$</p> <p>Let say, $x = \frac{\theta}{2}$</p>	4
18	<p>$k = 13, n = 2$ (both)</p> <p>B2: $\frac{13}{(x+5)^2}$</p> <p>B1: $\frac{2(x+5) - (2x-3)(1)}{(x+5)^2}$</p>	3
19	<p><i>Berat</i> = 79.19 g</p> <p>B2: $50.67\pi \text{ cm}^3 - 32\pi \text{ cm}^3$</p> <p>B1: $\pi \left[25x - 5x^2 + \frac{x^3}{3} \right]_{-1}^1 - \pi [16x]_{-1}^1$</p>	3

20	$y = \frac{x^4}{2} - \frac{x^3}{3} + \frac{11}{6} \quad \underline{\text{atau}} \quad 6y = 3x^4 - 2x^3 + 11$ <p>B2: $c = \frac{11}{6}$</p> $2 = \frac{1}{2} - \frac{1}{3} + c$ <p>B1: $y = \frac{x^4}{2} - \frac{x^3}{3} + c$</p>	3
21	<p>a) 1200</p> <p>B1: $\frac{3500 + 2500 + 2(2800) + 3000 + 3x}{8} = 2275$</p> <p>b) 1550</p> <p>B1: $1200 + 350$</p>	2
22	<p>(a) 1</p> <p>(b) 100</p> <p>B1: ${}^5C_3 \times {}^5C_2$</p>	1 2
23	<p>Peratusan = 20%</p> <p>B3: $\frac{{}^4P_1 \times 1}{{}^5P_5} \times 100$</p> <p>B2: ${}^5P_5 \text{ and } {}^4P_4 \times 1$</p> <p>B1: ${}^5P_5 \text{ or } {}^4P_4 \times 1$</p>	4
24	<p>0.9127</p> <p>B2: $\frac{205.36}{225}$</p> <p>B1: $15^2 - (3.142)(2.5)^2 = 205.36$</p>	3

25	a) $\sigma_{alpha} = 36.51$ $\sigma_{beta} = 51.64$ b) Alpha=Normal curve m Beta= Normal curve n	1 1 1 1
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