



**MAJLIS PENGETUA-PENGETUA SEKOLAH MALAYSIA
(CAWANGAN PULAU PINANG)**

SULIT

3472/1

MODUL BERFOKUS KBAT SPM

ANJURAN MPSM CAWANGAN PULAU PINANG

DENGAN KERJASAMA


SEKTOR PENGURUSAN AKADEMIK
JABATAN PENDIDIKAN PULAU PINANG

ADDITIONAL MATHEMATICS 1

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MARKING SCHEME

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NO.	SOLUTION	MARKS
1	(a) 3 (b) Many to one	1 1
2	(a) 6 (b) $2 \leq f(x) \leq 10$ B1 : $f(4) = 2 + 3(4) - 4 $	1 2
3	$p = 1, q = 1$ (Both) B2 : $p = 1$ or $q = 1$ B1 : $\alpha + \beta = -1$ or $\alpha\beta = 1$ or $\alpha + \beta = \frac{-q}{p}$ or $\alpha\beta = \frac{1}{p}$	3
4	$-3 \leq x \leq \frac{1}{2}$ B2 :  B1 : $(2x - 1)(x + 3) \leq 0$	3
5	(a) $x = 3$ (b) $f(x) = 4 - (x - 3)^2$ B1 : $4 - (x - 3)^2$	1 2
6	$\frac{10}{3}$ B2 : $6^x \times \frac{100}{9} = 6^{3x}$ B1 : $2^x \times 2^2 \times \frac{3^x}{3^2} \times 5^2 = 6^{3x}$	3

7	$q = \frac{27n^3p^4}{m^4}$ <p>B2: $\log_3 \frac{m^3q}{n^3p^4} = 3$</p> <p>B1: $\log_3 m^4$ or $\log_3 n^3$ or $\frac{\log_3 p^8}{\log_3 9}$</p>	3
8	$\sqrt{98}$ or 9.899 <p>B2: $Q(11, -3)$ or $\sqrt{(11-4)^2 + (-3-4)^2}$</p> <p>B1: $6 = \frac{20+2h}{7}$ or $2 = \frac{20+2k}{7}$</p>	3
9	<p>(a) $p = 5$</p> <p>(b) $q = -2$</p>	1 1
10	<p>(a) 51</p> <p>(b) $k = 46$</p> <p>B2: $\frac{600 - (k + k + 2)}{23} = 22$</p> <p>B1: $\sum x = 600$</p>	1 3
11	<p>69.1</p> <p>B3: $x^2 - x - 4705.71 = 0$</p> <p>B2: $-406.4036 = \frac{\sum x^2}{5} - (34.94)^2$</p> <p>B1: $\frac{\sum x}{N} = 34.94$ atau $\sum x^2 = 8777.71$</p>	4
12	<p>(a) $r = 9$</p> <p>(b) 0.7725</p> <p>B2: $\frac{1}{2}(20^2)\theta - \frac{1}{2}(9^2)\left(\frac{7}{3}\right) = 60$</p> <p>B1: $\frac{1}{2}(20^2)\theta$ or $\frac{1}{2}(9^2)\left(\frac{7}{3}\right)$</p>	1 3

13	<p>(a) $A = 9\pi - 6x + \frac{\pi x^2}{4}$</p> <p>B1: $r = \frac{\sqrt{6^2 + x^2}}{2}$</p> <p>(b) $\frac{12}{\pi}$ or 3.819 or 3.820</p> <p>B1: $\frac{dA}{dx} = -6 + \frac{\pi x}{2}$</p>	2
14	<p>$\frac{-3x^2 - 2x - 9}{(x^2 - 3)^2}$</p> <p>B2: $\frac{(x^2 - 3)(3) - (3x + 1)(2x)}{(x^2 - 3)^2}$</p> <p>B1: $\frac{du}{dx} = 3$ or $\frac{dv}{dx} = 2x$</p>	3
15	<p>24.5</p> <p>B1: $\frac{6}{2}[4(6) + 5] - \frac{5}{2}[4(5) + 5]$</p>	2
16	<p>18</p> <p>B2: $(n - 1)\log 1.07 > \log 3$</p> <p>B1: $h(1.07)^{n-1} > 3h$</p>	3
17	<p>$n = 2, k = 81$ (Both)</p> <p>B2: $n = 2$ or $k = 81$</p> <p>B1: $\log_3 y = 3n \log_3 x - \log_3 k$ or $3n = 6$ or $\log_3 k = 4 + c$</p>	3

18	<p>(a) 16</p> <p>(b) -4</p> $B2: -6 + \left[\frac{kx^2}{2} \right]_3^0 = 12$ $B1: \int_3^0 f(x) dx = -6$	<p>1</p> <p>3</p>
19	<p>(8, 3)</p> $B2: \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 3 \\ 5 \end{pmatrix} + \begin{pmatrix} 5 \\ -2 \end{pmatrix}$ $B1: \overrightarrow{OT} = \overrightarrow{OS} + \overrightarrow{ST}$	3
20	<p>(a) $\frac{1}{5}(4\vec{i} - 3\vec{j})$</p> $B1: \overrightarrow{OP} = \begin{pmatrix} 4 \\ -3 \end{pmatrix} \text{ or } \overrightarrow{OP} = \sqrt{4^2 + (-3)^2}$ <p>(b) $\frac{5}{4}$</p> $B1: \frac{k}{k-2} = \frac{5}{-3}$	<p>2</p> <p>2</p>
21	<p>(a) $2\rho - 1$</p> <p>(b) $\frac{\sqrt{1-\rho^2}}{\rho}$</p> $B1: \sqrt{1-\rho^2}$	<p>1</p> <p>2</p>

22	$r = 3$ B3: $(r - 3)(r - 8) = 0$ B2: $\frac{6}{(6 - r)(5 - r)} = 1$ B1: $\frac{6!}{(6 - r)!r!} = 5 \times \frac{4!}{(4 - r)!r!}$	4
23	$x = 6$ B2: $\frac{x}{10 + x} = \frac{3}{8}$ B1: $\frac{x}{10 + x}$	3
24	(a) -1.14 B1: $P(z < -k) \text{ or } P(z > k) = 0.1271$ (b) 30.02 B1: $\frac{X - 38}{7} = * -1.14$	2 2
25	(a) 0.9952 B1: ${}^{10}C_0(0.65)^0(0.35)^{10} \text{ or } {}^{10}C_1(0.65)^1(0.35)^9 \text{ or } {}^{10}C_2(0.65)^2(0.35)^8$ (b) 40 B1: $0.65 \times n = 26$	2 2