

MARK SCHEME : ADDITIONAL MATHEMATICS (PAPER 1) TRIAL KELANTAN 2018

NO	ANSWERS	SUB MARK	TOTAL MARK
1	<p>(a) <math>p = 0</math></p> <p>(b) <math>q &lt; 0</math></p> <p>(c) <math>x = 0</math></p>	<p>1</p> <p>1</p> <p>1</p>	3
2	<p>2: <math>k = 2</math></p> <p>B1: <math>\frac{4k+2}{2} = 5</math> or <math>\frac{4k+4}{4} = 3</math></p>	2	2
3(a)	<p><math>m = \frac{1}{5}</math></p>	1	3
3(b)	<p>2: <math>p = 2</math></p> <p>B1: <math>\frac{2p}{5(1)-1} = 1</math></p>	2	
4(a)	18	1	3
(b)	<p>2: 5760</p> <p>B1: <math>4! \times 5! \times 2</math></p>	2	
5	<p>2: <math>p = -\frac{1}{3h} + 6</math></p> <p>B1: <math>3h(p-6) = -1</math></p>	2	2
6(a)	$y = x^2 - 4x$	1	3
(b)	<p>2: <math>Y = \frac{y}{x}, X = x</math> (both),</p> <p><math>Y = \frac{y}{x}</math> or <math>X = x</math></p> <p>B1:</p>	2	
7	2: m		

	B1: $m - 30 + (11-1)d = 30 + m$ OR $\frac{m-30+30+m}{2}$	2	2
8 (a)	2: $p = 3q$ B1: $\frac{3q}{\binom{p}{2}} = \frac{2p}{3q}$	2	
(b)	2: $\frac{3q}{4}$ B1: $= \frac{\binom{p}{2}}{x} = \frac{3q}{\binom{p}{2}}$	2	4
9	3: $p = 3, p = -3$ (both) B2: $\sqrt{(2^2 + 3^2)} = \sqrt{(p^2 + (-2)^2)}$ B1: $\sqrt{(2^2 + 3^2)}$ or $\sqrt{(p^2 + (-2)^2)}$	3	3
10	2: $k = 1, k = 13$ (both) B1: $(7-k)^2 = 36$	2	2
11	3: $m = 11, n = 3$ (both) B2: $m = 11$ or $n = 3$ B1: $n + (n+2) = -(-8)$ or $n(n+2) = m+4$	3	3
12 (a)	2: $k = 9$ B1: $\binom{12}{k} = \binom{-5}{3} + \binom{17}{6}$	2	
12(b)	2: $\binom{21}{9}$	2	4

	B1: $\overline{OR} = \overline{OP} + \overline{PR}$ or $\overline{PR} = \begin{pmatrix} 16 \\ 12 \end{pmatrix}$		
13 (a)	2 : $a = 1, b = -7$ (both) B1: $10 = a(6)^2 + b(6) + 16$ or $5 = 2ax + b$	2	
(b)	2: $x = \frac{7}{2}$ B1: $0 = 2(1)x - 7$	2	4
14	(a) 50.5 (b) $m = 4$ B2 : $60.5 + \left[ \frac{\frac{3}{4}(28+m) - 20}{8} \right] (20) = 70.5$ B1 : 60.5 or 8 or 20	4	4
15	3: 100 meter B2 : $\sqrt{(5 - (-1))^2 + (4 - (-4))^2}$ B1: $(-1, -4)$	3	3
16	No, because max height = 22 meter B3 : $h(x) = -\frac{1}{88}(x-44)^2 + 22$ B2 : $h(x) = -\frac{1}{88}[(x-44)^2 - 1936]$ B1 : $h(x) = -\frac{1}{88}[x^2 - 88x]$	4	4
17	3: $\frac{2}{15}\pi$		

	<p>B2: <math>\frac{1}{3}\pi(1)^2(1) - \pi\left[\frac{1}{5} - 0\right]</math></p> <p>B1: <math>\frac{1}{3}\pi(1)^2(1)</math> or <math>\pi\left[\frac{x^5}{5}\right]</math></p>		3
18 (a)	$n=1$	1	
(b)	<p>2: <math>p=2-q</math></p> <p>B1: <math>3^{2p} = 3^{-2(q-2)}</math> or <math>3^{2p} \times 3^{2(q-2)} = 3^0</math></p>	2	3
19 (a)	<p>2: <math>-2</math></p> <p>B1: <math>2\log_a \frac{1}{a}</math></p>	2	4
(b)	<p>2: 1</p> <p>B1: <math>\log_y z \times \frac{\log_y x}{\log_y z} \times \frac{\log_y y}{\log_y x}</math> or equivalent</p>	2	
20 (a)	$\frac{1}{4}\pi$	1	
(b)i	<p>2: <math>\sqrt{1-t^2}</math></p> <p>B1: <math>\sqrt{1^2-t^2}</math> or see on diagram <math>\sqrt{1^2-t^2}</math></p>	3	4
ii	t		
21 (a)	<p>2: 0.00877</p> <p>B1: <math>\frac{43-62}{8}</math> (see)</p>	2	
(b)	<p>2: <math>\sigma^2 = 100p - 100p^2</math></p> <p>B1: <math>\sigma^2 = 100p(1-p)</math></p>	2	4
22	<p>3: 7</p> <p>B2: <math>w^2 + 11w - 126 = 0 =</math></p>	3	3

	B1: $\left(\frac{6}{6+w}\right)\left(\frac{5}{(6-1)+w}\right) = \left(\frac{5}{26}\right)$		
23	3: $0^\circ, 70.53^\circ, 109.47^\circ, 360^\circ$ B2: $0^\circ, 70.53^\circ$ ( <i>sudut rujukan</i> ) B1: $\frac{1}{\cos^2 x} + \frac{2}{\cos x} = 3$ or $\sec^2 x + 2\sec x - 3 = 0$	3	3
24	3: $-\frac{4}{15}$ B2: $-0.3\pi = 18\pi\left(\frac{1}{4}\right)^2 \times \frac{dh}{dt}$ B1: $\frac{dV}{dt} = -0.3\pi$ or $\frac{dV}{dt} = 18\pi h^2$	3	3
25	0.571rad B3: $2 + \theta = \pi - \theta$ B2: $j + j + j\theta = j(\pi - \theta)$ B1: $j + j + j\theta$ or $j(\pi - \theta)$	4	4