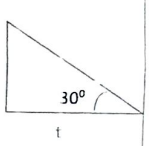
MARK SCHEME : ADDITIONAL MATHEMATICS (PAPER 1) TRIAL KELANTAN 2018

NO	ANSWERS	SUB MARK	TOTAL MARK
1	(a) $p=0$ (b) $q<0$ (c) $x=0$	1 1 1	3
2	2 : $k=2$ B1: $\frac{4k+2}{2}=5$ or $\frac{4k+4}{4}=3$	2	2
3(a)	$m=\frac{1}{5}$	1	3
3(b)	2 : $p=2$ B1: $\frac{2p}{5(1)-1}=1$	2	
4(a)	18	1	3
(b)	2 : 5760 B1: 4! x 5! x 2	2	
5	2 : $p=-\frac{1}{3h}+6$ B1 $3h(p-6)=-1$	2	2
6 (a)	$y=x^2-4x$	1	3
(b)	2: $Y=\frac{y}{x}, X=x$ (both) B1 $Y=\frac{y}{x}$ or $X=x$	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: $\frac{3q}{\left(\frac{p}{2}\right)}=\frac{2p}{3q}$	2	4
(b)	2: $\frac{3q}{4}$ B1: $=\frac{\left(\frac{p}{2}\right)}{x}=\frac{3q}{\left(\frac{p}{2}\right)}$	2	
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	4
12(b)	2: $\binom{21}{9}$	2	

	B1: $\overrightarrow{OR} = \overrightarrow{OP} + \overrightarrow{PR}$ or $\overrightarrow{PR} = \begin{pmatrix} 16 \\ 12 \end{pmatrix}$		
13 (a)	2 : a = 1 , b =-7 (*both*)	2	
(b)	B1: $10 = a(6)^2 + b(6) + 16$ or $5 = 2ax + b$ 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 <u>or</u> 8 <u>or</u> 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 : $h(x) = -\frac{1}{88}\left[(x-44)^2 - 1936\right]$ B1 : $h(x) = -\frac{1}{88}\left[x^2 - 88x\right]$	4	4
17	3: $\frac{2}{15}\pi$		

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

	B1: $\left(\frac{6}{6+w}\right)\left(\frac{5}{(6-1)+w}\right)=\left(\frac{5}{26}\right)$		
23	3 : $0^0, 70.53^0, 109.47^0, 360^0$ B2 : $0^0, 70.53^0$ (*sudut rujukan*) B1: $\frac{1}{kos^2x}+\frac{2}{kosx}=3$ *or* $sek^2x+2sekx-3=0$	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

$b^2-4ac \geq 0$

$0-4pq>0$

$p>q$