

**3472/1(PP)
Tingkatan
Lima
Additional
Mathematics
Kertas 1
Peraturan
Pemarkahan
Ogos
2017**

**PENILAIAN PERCUBAAN SPM NEGERI PAHANG
TAHUN 2017**

**ADDITIONAL MATHEMATICS
Tingkatan 5**

KERTAS 1

PERATURAN PEMARKAHAN

UNTUK KEGUNAAN PEMERIKSA SAHAJA

ADDITIONAL MATHEMATICS TRIAL SPM PARER 1 2017

Question	Solutions and marking scheme	Sub Marks	Full Marks
1(a)	2 and 3 B1 $a(a+1) = 6$ or any other variable except y	2	3
(b)	-4	1	
2	Can reach because discriminant $= 59.4 > 0$, has real roots Accept : Can reach at the time of 2.62s , 1.05s B1 : $4.9t^2 - 18t + 13.5 = 0$ or $-4.9t^2 + 18t - 13.5 = 0$	2	2
3(a)	2 B1 : $\frac{5x}{x^2+1} = \frac{20}{5x}$	2	4
(b)	160 B1 : $T_8 = \frac{5}{4}(2)^{8-1}$ or $T_6 = 5(2)^{6-1}$ or list completely, 5, 10, 20, 40, 80, 160	2	
4(a)	$-\frac{3}{2}$ or -1.5 B1 : $15 + (n-1)(-\frac{3}{2}) < 0$	2	4
(b)	$\frac{165}{2}$ or 82.5 B1 $\frac{11}{2} [2(15) + 10(-\frac{3}{2})]$	2	
5	$\frac{3}{2}$ or 1.5 B2 : $a = 2d$ or $d = \frac{1}{2}a$ B1 : $\frac{a+4d}{a+2d} = \frac{a+7d}{a+4d}$	3	3
6	3 B2: $\frac{3x}{\sqrt{2x+5}}$ B1: $(x-5)\frac{1}{2}(2x+5)^{-\frac{1}{2}}(2) + (2x+5)^{\frac{1}{2}}(1)$	3	3
7	3 ms^{-1} B2: $12\pi = 2\pi(2) \times \frac{dr}{dt}$ or equivalent B1: $\frac{dA}{dt} = 12\pi$ or $\frac{dA}{dr} = 2\pi r$	3	3
8(a)	152.37 B1 : $30(5.097)$ or $2(3.142)(30) - 1.205(30)$ or equivalent	2	4
(b)	2705.8 B1 : $\frac{1}{2}(30^2)(5.079) + \frac{1}{2}(24.72)(34)$ or $\frac{1}{2}(30^2)(5.079) + \frac{1}{2}(30)(34) \sin 55.48^\circ$	2	

Question	Solutions and marking scheme	Sub Marks	Full Marks
9(a)	$p < 0$	1	3
(b)	-9	1	
(c)	20	1	
10(a)	$y = \frac{10}{\sqrt{x}} - 2\sqrt{x}$ B1 : gradient = -2 and y-intercept =10 or $y\sqrt{x} = -2x + 10$	2	3
(b)	$-\frac{8}{3}$	1	
11(a)	(3, 2)	1	4
(b)	$y = 2x-4$	1	
(c)	1 : 2 B1 : $2 = \frac{BM(6)+MD(0)}{BM+MD}$ or $3 = \frac{BM(5)+MD(2)}{BM+MD}$	2	
12	$3y^2 - x^2 + 2x + 4y - 5 = 0$ B1 : $\sqrt{(x-1)^2 + (y-2)^2} = 2y$	2	2
13(a)	p	1	4
(b)	$p+1$	1	
(c)	$\frac{p+\sqrt{3(1-p^2)}}{2}$ accept $\frac{p+\sqrt{3}\sqrt{1-p^2}}{2}$ B1 : $\sin 30^\circ \cos 25^\circ + \cos 30^\circ \sin 25^\circ$	2	
14(a)	5.55	1	2
(b)	0	1	
15(a)	1	1	3
(b)	$(\frac{8}{27}, 6)$ B1 : $x = \frac{8}{27}$	2	
16(a)	$y = \frac{\sqrt{10}}{x}$ B2 : $x^4 y^2 = \frac{(10^{\frac{3}{2}})(x)}{y}$ or equivalent B1 : apply any law of logarithms $\log_{10} 10^{\frac{3}{2}}(x)$ or $\log_{10} \frac{10^{\frac{3}{2}}}{y}$ or $\log_{10} \frac{x}{y}$ or $\log_{10} x^4 y^2$	3	4
(b)	$\frac{1}{2}$	1	

Question	Solutions and marking scheme	Sub Marks	Full Marks
17(a)		1	2
(b)	$\sqrt{80}$ or 8.944	1	
18(a)	$5\underline{b} - 3\underline{a}$ B1 : $\overrightarrow{AC} = \overrightarrow{AB} + \overrightarrow{BC}$	2	4
(b)	$\frac{9}{8}\underline{a} + \frac{25}{8}\underline{b}$ B1 : $5\underline{b} + \frac{3}{8}(-5\underline{b} + 3\underline{a})$	2	
19(a)	70 B1 : $4c_0p^0q^4 = 0.0081$ or $p = 0.7$ or $q = 0.3$	2	4
(b)	0.9163 B1: $1 - P(X = 0) - P(X = 1)$ or $1 - 0.0081 - 0.0756$	2	
20	$31.52 < x < 58.48$ B2 : $x = 58.48$ or 31.52 B1 : $z = 0.674$ or -0.674	3	3
21 (a)	$\{ (a, 2), (a, 4), (b, 4) \}$	1	2
(b)	$\{2, 4, 6\}$	1	
22(a)	81 B1 : $\sqrt{k} - 3 = 6$	2	4
(b)	$h(x) = gf(x)$ B1 : $h(x) = \sqrt{f(x)}$	2	

Question	Solutions and marking scheme	Sub Marks	Full Marks
23	26 B1 : $\frac{x+10}{x-8} = 2$ or $f^{-1}(x) = \frac{10+8x}{x-1}$, $x \neq 1$	2	2
24(a)	362880	1	4
(b)(i)	10080	1	
(ii)	40320 B1 : $2!7! \times 4$	2	
25(a)	Mean = 5, standard deviation = 2.74 (both)	1	4
(b)	5, 11 B2 : $(\alpha - 11)(\alpha - 5) = 0$ or $(\beta - 11)(\beta - 5) = 0$ B1 : $6 = \frac{2+3+6+9+\alpha+\beta}{6}$ or $10 = \frac{4+9+36+81+\alpha^2+\beta^2}{6} - 6^2$	3	