3472/1

Matematik
Tambahan
Kertas 1
2 jam
Mei 2011

BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERTENGAHAN TAHUN
TINGKATAN 5
2011

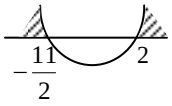
ADDITIONAL MATHEMATICS

Paper 1

MARKING SCHEME

Skema Pemarkahan ini mengandungi **6** halaman bercetak

PERATURAN PEMARKAHAN- KERTAS 1

No.	Solution and Mark Scheme	Sub Marks	Total Marks
1(a)	{2, 4, 6, 10}	1	2
(b)	One to many	1	
2(a)	$g^{-1}(x) = \frac{x-3}{2}$	1	3
(b)	-1 B1 : $\frac{-1-3}{2}$	2	
3	$g(x) = -46+14x-x^2$ B2 : $3-4\left(\frac{x-7}{2}\right)^2$ B1 : $g^{-1}(x) = \frac{x-7}{2}$	3	3
4	$0.372, -5.37$ B2 : $x = \frac{-5 \pm \sqrt{(5)^2 - 4(1)(-2)}}{2(1)}$ B1 : $x^2 + 5x - 2 = 0$	3	3
5	$h < \frac{25}{2}$ B2 : $(-10)^2 - 4(2)(h) > 0$ B1 : $2x^2 - 10x + h = 0$	3	3
6	$x < -\frac{11}{2}$, $x > 2$ B2 : $(2x + 11)(x - 2) > 0$ or  B1 : $2x^2 + 7x - 22 > 0$	3	3
7(a)	4	1	4
(b)	3 B1 : $-8 = -a(0-2)^2 + 4$	2	
(c)	$x = 2$	1	

8	$\frac{k-3-h}{2}$ B3 : $\frac{log_5 b - log_5 5^3 - log_5 a}{2}$ B2 : $\frac{log_5 b - [log_5 5^3 a]}{2}$ B1 : $\frac{\log_5\left(\frac{b}{125a}\right)}{\log_5 25}$	4	4
9	$n = -\frac{1}{2}$ B2 : $2n+6=-4n+3$ B1 : $3^{2(n+3)} = 3^{-n-3n+3}$ or $3^{4(n+3)\frac{1}{2}} = \frac{1}{3^3.3^{3(n-1)}}$	3	3
10(a)	$p=6$ B1 : $3p-1-(2p+8)=p+8-(3p-1)$	2	4
(b)	$T_n = 23-3n$ B1 : $T_n = 20+(n-1)(-3)$	2	
11(a)	$\frac{4}{5}$ B1 : $25=\frac{5}{1-r}$	2	4
(b)	12.2 or $\frac{61}{6}$ or $12\frac{1}{5}$ B1 : $\frac{5(1-(\frac{4}{5})^3)}{1-(\frac{4}{5})}$ or $5+5\left(\frac{4}{5}\right)+5\left(\frac{4}{5}\right)^2$	2	

12	$y = \frac{x}{2+5x}$ B2 : $\frac{1}{y} = 2\left(\frac{1}{x}\right)+5$ or equivalent B1 : $\frac{1}{y} = 2\left(\frac{1}{x}\right)+c$ OR c = 5 or 15 = 2(5) + c	3	3
13	a = 10 and b = 100 (both) B2 : a = 10 OR b = 100 OR $\log_{10} b = 2$ *and* $\log_{10} a = 1$ (both) B1 : $\log_{10} y = \log_{10} a + x\log_{10} b$ OR gradient, $m = \frac{5-1}{2-0} = 2$ OR $\log_{10} b = 2$ OR $\log_{10} a = 1$	3	3
14	(4,5) B2 : x = 4 and y = 5 B1 : $\frac{10(1)+3(2)}{3+1}$ or $\frac{8(1)+3(4)}{3+1}$ or equivalent	3	3
15	$5x^2+5y^2+22x-80y+49=0$ or equivalent B2 : $3\sqrt{(x-1)^2+(y-4)^2} = 2\sqrt{(x-5)^2+(y-(-1))^2}$ B1 : $\frac{PA}{PB} = \frac{2}{3}$ or equivalent	3	3
16(a) (b)	5 B1 : $\overrightarrow{OR} = 4\underline{i} - 3\underline{j}$ or $\begin{pmatrix}4\\-3\end{pmatrix}$ (b) $\frac{4\underline{i}-3\underline{j}}{5}$ or $\frac{1}{5}\begin{pmatrix}4\\-3\end{pmatrix}$	2 1	3
17(a) (b)	$6\underline{x}-6\underline{y}$ $3\underline{x}+\underline{y}$ B1 : $\overrightarrow{MK} = \frac{1}{2}(6\underline{x}-6\underline{y})$	1 2	3

18(a) (b)	$\frac{\pi}{3}$ rad or 1.047 rad 37.70 cm^2 or 37.69 cm^2 B1 : $\frac{1}{2}(6)^2(\frac{2\pi}{3})$ or $\frac{1}{2}(6)^2(2.094)$	1 2	3
19	60^o , 131.81^o or $131^o49'$, 228.19^o or $228^o11'$, 300^o B3 : $\cos\theta = \frac{1}{2}$, $\cos\theta = -\frac{2}{3}$ B2 : $(3cos\theta + 2)(2cos\theta - 1) = 0$ B1 : $6(1 - cos^2\theta) - 4 = cos\theta$	4	4
20	$-\frac{1}{16}$ B2: $\frac{(1-3(-1))(2)-(2(-1)-1)(-3)}{(1-3(-1))^2}$ or equivalent B1: $\frac{(1-3x)(2)-(2x-1)(-3)}{(1-3x)^2}$	3	3
21 (a) (b)	$-\frac{4}{3}x^{-3} - 36$ $-\frac{1}{3}$ B1 : $-\frac{4}{3}x^{-3} - 36 = 0$	1 2	3
22	n = -3 and p = $-\frac{1}{8}$ B2 : n = -3 or p = $-\frac{1}{8}$ B1 : $\frac{(1-2x)^{-n+1}}{(-n+1)(-2)}$	3	3

23 (a) (b)	-4 $-\frac{1}{3}$ B2 : $4-[kx]_{-1}^{2}=5$ B1 : $\int_{-1}^{2} f(x)dx-\int_{-1}^{2} kdx=5$	1 3	4
24	43.7 B2 : $\text{median}=40.5+\left(\frac{\frac{80}{2}-32}{25}\right)10$ B1 : lower boundary, L = 40.5 or 32 or 25	3	3
25	3.428 B2 : $\sigma^2=\frac{3^2+5^2+5^2+5^2+6^2+7^2+11^2+14^2}{8}-(7)^2$ B1 : $\frac{\Sigma x}{N}=\frac{56}{8}$ or $\bar{x}=7$	3	3