

**SULIT**

3472/1(SP)

3472/1  
Matematik  
Tambahan  
Kertas 1  
Ogos  
2008  
2 jam



**JABATAN PELAJARAN WILAYAH PERSEKUTUAN KUALA LUMPUR**

**PEPERIKSAAN PERCUBAAN  
SIJIL PELAJARAN MALAYSIA 2008**

**SKEMA PEMARKAHAN**

---

---

**ADDITIONAL MATHEMATICS**


Paper 1

---

---

3472/1(SP)

[Lihat sebelah  
SULIT

Question	Solution	Sub Mark	Full Mark
1	(a) 8,10 (b) 4	1 1	2
2	$gf(x) = g(3x-2)$ $= \frac{1-(3x-2)}{3x-2}$ $= \frac{3-3x}{3x-2}, x \neq \frac{2}{3}$	1 1,1	3
3	$f^{-1}(x) = \frac{1}{h}x + \frac{3}{h}$ $h = \frac{1}{2}$ $k = 6$	1 1 1	3
4	$(p-1)x^2 - 8x - 4 = 0$ $(-8)^2 - 4(p-1)(-4) > 0$ $p > -3$	1 1 1	3
5	$x^2 - 4x - 21 \geq 0$ $(x-7)(x+3) \geq 0$ or  $x \leq -3, x \geq 7$	1 1 1	3
6	(a) $h = -2$ $k = 6$  (b) $c = -\frac{1}{2}(0-2)^2 + 6$ $c = 4$	1 1  1 1	4
7	$\log_{10} 5^{2x+1} = \log_{10} 8^x$ $(2x+1)\log_{10} 5 = x\log_{10} 8$ $0.699(2x+1) = 0.9031x$ $x = \frac{-0.699}{0.4949}$ $= -1.412$	1 1 1	3

8	$\log_3 x - \frac{4}{\log_3 x} + 3 = 0$ $(\log_3 x)^2 + 3\log_3 x - 4 = 0$ <p>Let <math>y = \log_3 x</math></p> $y^2 + 3y - 4 = 0$ $(y+4)(y-1) = 0$ <p>or <math>(\log_3 x + 4)(\log_3 x - 1) = 0</math> }  <math>y = -4</math> or <math>y = 1</math>  <math>\log_3 x = -4</math> or <math>\log_3 x = 1</math>  <math>x = \frac{1}{81}</math> , <math>x = 3</math> (Both)</p>	1 1 1 1	<b>4</b>
9	<p>a) <math>ar^2 = 108</math> or <math>ar^4 = 12</math></p> $r = \frac{1}{3}$ <p>b) <math>a\left(\frac{1}{3}\right)^2 = 108</math>  <math>a = 972</math></p>	1 1 1 1	<b>4</b>
10	$r = \frac{12}{x+1}$ or $r = \frac{4x+4}{12}$ $\frac{12}{x+1} = \frac{4x+4}{12}$ $4x^2 + 8x - 140 = 0$ $(x-5)(x+7) = 0$ $x = 5, x = -7$ (Both)	1 1 1 1	<b>4</b>
11	$\frac{6}{2}[a+8] = 39$ OR $\frac{6}{2}[2a+5d] = 39$ and $a + 5d = 8$ $a = 5$	1, 1 1	<b>3</b>
12	<p>(a) <math>\log_4 y = (b\log_4 A)x + \log_4 A</math></p> <p>or <math>\log_4 A = 2</math></p> $A = 16$ <p>(b) <math>b\log_4 A = \frac{2-1}{0-(-2)} = \frac{1}{2}</math>  <math>b = \frac{1}{4}</math></p>	1 1 1 1	<b>4</b>

[Lihat sebelah

13	$\left(-\frac{6}{a}\right)(2) = -1$ $a = 12$	1	1	2	
14	<p>(a) Area = <math>\frac{1}{2} \begin{vmatrix} -6 &amp; -4 &amp; k &amp; -6 \\ -8 &amp; -4 &amp; -14 &amp; -8 \end{vmatrix}</math></p> $= \frac{1}{2}  24 + 56 - 8k - 32 + 4k - 84 $ $= \frac{1}{2}  -36 - 4k $ $= 18 + 2k$ <p>(b) <math>18 + 2k = 0</math></p> $k = -9$	1	1	1	4
15	<p>(a) <math>\vec{QS} = \vec{QP} + \vec{PS}</math></p> $= -15p + 10q$ <p>(b) <math>\vec{TR} = \vec{TQ} + \vec{QR}</math></p> $= \frac{3}{5}\vec{SQ} + \vec{QR}$ $= \frac{3}{5}(15p - 10q) + 10q$ $= 9p + 4q$	1	1	1	4
16	<p>(a) <math>\vec{OP} = \begin{pmatrix} -3 \\ -4 \end{pmatrix}</math></p> <p>(b) Magnitude of OP = 5</p> $\frac{1}{5} \begin{pmatrix} -3 \\ -4 \end{pmatrix} \text{ or } \begin{pmatrix} -\frac{3}{5} \\ \frac{4}{5} \end{pmatrix}$	1	1	1	3

17	(a) $\sqrt{1-t^2}$  (b) $\tan(90^\circ - x) = \cot x$ $= \frac{t}{\sqrt{1-t^2}}$	1  1  1	   <b>3</b>
18	$\angle POR = 0.7854 \text{ rad}$ $PO = \sqrt{4^2 + 4^2} = \sqrt{32} = 5.6569$ $QR = 5.6569 - 4 = 1.6569$  Perimeter = $(0.7854 \times \sqrt{32}) + 4 + 1.6569$ $= 10.1 \text{ or } 10.0998$	1  1 1	   <b>3</b>
19	Gradient of tangent = -3 $\frac{1}{2}k + 1 = -3$ $k = -8$	1  1  1	   <b>3</b>
20	$h(x) = 3(2x-1)^{-3}$ $h'(x) = -9(2x-1)^{-4}(2)$ $h'(1) = \frac{-18}{[2(1)-1]^4}$ $h'(1) = -18$	1  1  1	   <b>3</b>
21	$\left[ \frac{4x^2}{2} + 6x \right]_2^k = -24$ $(2k^2 + 6k) - (8 + 12) = -24$ $k^2 + 3k + 2 = 0$ $(k+1)(k+2) = 0$ $k = -1, k = -2 \text{ (Both)}$	1  1  1 1	    <b>4</b>
22	(a) New interquartile range = $\frac{1}{4} \times 8 = 2$  (b) New standard deviation = $\sqrt{25} \times \frac{1}{4}$ $= \frac{5}{4} \text{ or } 1.25$	1  1  1	   <b>3</b>

[Lihat sebelah

23	(a) $\frac{2}{7} \times \frac{1}{3}$ $= \frac{2}{21}$ (b) $\frac{2}{7} \times \frac{2}{3} + \frac{1}{3} \times \frac{5}{7}$ $= \frac{9}{21}$	1	
24	$n = 10, p = 0.3, q = 0.7, r = 2$ $P(X = 2) = {}^{10}C_2(0.3)^2(0.7)^{10-2}$ $= 0.2335$	1	3
25	$1 - 0.6103 = 0.3897$ From the table, $a = -0.28$	1	2

**END OF MARK SCHEME**