

3472/2

Matematik
Tambahan
Kertas 2
Ogos 2011
2 ½ jam



**BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA**

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2011
TINGKATAN 5**

ADDITIONAL MATHEMATICS

Paper 2

MARKING SCHEME

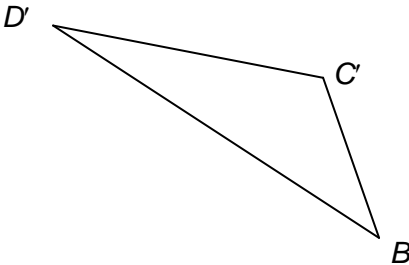
Skema Pemarkahan ini mengandungi **9** halaman bercetak

3	<p>(a) $a = A, d = -D$</p> $S_{10} = \frac{10}{2}[2A + 99(-D)] = 720 \quad \text{or} \quad S_{20} = \frac{20}{2}[2A + 19(-D)] = 1040 \quad \text{K1}$ <p>Solving the simultaneous in linear equation K1</p> <p style="text-align: center;">$A = 90 \quad \text{or} \quad D = 4$ N1</p> <p style="text-align: center;">$A = 90 \quad \text{and} \quad D = 4$ N1</p> <p>(b) $T_{10} = 90 + 9(-4) \quad \text{or} \quad T_{20} = 90 + 19(-4) \quad \text{K1}$</p> <p style="text-align: center;">Difference = 40 N1</p>	4	6
4(a)	<p>Area of trapezium - area under curve</p> $\int_0^7 (x+9) dx \quad \text{or} \quad \frac{1}{2}(16+9)(7) \quad \text{OR} \quad \int_0^7 (x-3)^2 dx \quad \text{K1}$ $\left[\frac{x^2}{2} + 9x \right]_0^7 \quad \text{OR} \quad \left[\frac{(x-3)^3}{3} \right]_0^7 \quad \text{K1}$ $= \frac{175}{2} \quad - \quad \frac{91}{3} \quad \text{K1}$ $= \frac{343}{6} / 57 \frac{1}{6} \text{ unit}^2 \quad \text{N1}$ <p>(b)</p> <p>$y = 0, x = 3 \quad \text{OR} \quad \pi \int_0^3 [(x-3)^2]^2 dx \quad \text{K1}$</p> $\pi \left[\frac{(x-3)^5}{5} \right]_0^3 \quad \text{K1}$ $\frac{243}{5} \pi \text{ unit}^3 \quad \text{N1}$	4	7
		3	

5(a)	$m_{PQ} = -\frac{5}{3}$	K1	3	7
	$y - 3 = -\frac{5}{3}(x + 3)$	K1		
	$3y = -5x - 6$	N1		
(b)	$Q(0, -2)$	P1	4	
	$\sqrt{(x-0)^2 + (y+2)^2} \text{ or } \sqrt{(x-2)^2 + (y-6)^2}$	K1		
	$\sqrt{(x-0)^2 + (y+2)^2} = 2\sqrt{(x-2)^2 + (y-6)^2}$	K1		
	$3x^2 + 3y^2 - 16x - 52y + 156 = 0$	N1		
6(a)	$L = 54.5 \quad \text{OR} \quad 25 \text{ and } k$	P1	3	7
	$60 \frac{7}{26} = 54.5 + \left(\frac{\frac{47+k}{2} - 25}{k} \right) 15$	K1		
	$k = 13$	N1		
(b)	$\text{Mean, } \bar{x} = \frac{3563}{60}$	P1	3	
	$\sigma = \sqrt{\frac{232\,755}{60} - \left(\frac{3563}{60} \right)^2}$	K1		
	$= 18.79$	N1		
(c)	37.58	N1	1	

8(a)	<p>(i) $\frac{dy}{dx} = 6x + 4$</p> <p>$m_{normal} = \frac{1}{2}$</p> <p>$2y = x + 7$ or equivalent</p> <p>(ii) $\delta y = (16)(-0.01)$</p> <p>$y_{new} = (3(2)^2 + 4(2) - 2) + (\delta y)$ 17.84</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	6	10
(b)	<p>(i) $\frac{8-x^3}{2x^5} = 0$</p> <p>$p = 2$</p> <p>(ii) $y = -\frac{1}{x^4} + \frac{1}{2x} + c$</p> <p>$y = -\frac{1}{x^4} + \frac{1}{2x} + \frac{45}{16}$</p>	<p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	4	
9(a)	<p>(i) $-\underline{a} + 2\underline{b}$</p> <p>(ii) $-\frac{1}{3}\vec{OA} + \frac{1}{2}\vec{OB}$</p> <p>$-\frac{1}{3}\underline{a} + \underline{b}$</p>	<p>N1</p> <p>K1</p> <p>N1</p>	3	10
(b)	<p>(i) $\underline{a} + m(-\underline{a} + 2\underline{b})$</p> <p>$(1-m)\underline{a} + 2m\underline{b}$</p> <p>(ii) $\underline{b} + n(-\frac{1}{3}\underline{a} + \underline{b})$</p> <p>$-\frac{1}{3}n\underline{a} + (1+n)\underline{b}$</p>	<p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	4	3

(c)	$2m = 1 + m \text{ or } 1 - m = -\frac{1}{3}n$	K1		
	Solve the simultaneous linear equation	K1		
	$m = 2, n = 3$ (Both correct)	N1		
10(a)	(i) $P(x = 2) = {}^{10}C_2(0.25)^2(0.75)^8$ $= 0.2186$	K1 N1	4	10
	(ii) $P(x > 2) = 1 - P(x = 0) - P(x = 1) - P(x = 2)$ $= 1 - {}^{10}C_0(0.25)^0(0.75)^{10} - {}^{10}C_1(0.25)^1(0.75)^9 - 0.2186$ $= 0.4744$	K1 N1		
(b)	(i) $P(x < 0.8) = P(z < \frac{0.8 - 1}{0.3})$ $= P(z < -0.667)$ $= 0.2524$	K1 N1	6	
	(ii) Total $= \frac{100}{0.2524}$ $= 396$	N1		
	(iii) $P(x > m) = 0.2$ $Z = 0.842$ $0.842 = \frac{m - 1.0}{0.3}$ $m = 1.253 \text{ kg}$	P1 K1 N1		
11(a)	BC = 4 , OC = 12 $\cos \theta = \frac{8}{12}$ $\theta = 0.8411 \text{ rad}$	P1 K1 N1	3	10
(b)	Area shaded = Area triangle OCE – Area sector OBE $= \frac{1}{2}(8)(12) \sin 0.8411 - \frac{1}{2}(8)^2(0.8411)$ $= 8.863 \text{ cm}^2$	K1K1 N1	3	

13(a)	<p>(i) $\sin \angle DEA = \frac{4 \sin 38}{5}$ K1 $\angle DEA = 29.507^\circ$ K1 $\angle DEC = 150.493^\circ$ N1</p> <p>(ii) $\angle DAE = 180 - 38 - 29.507 = 112.493^\circ$ P1 $DC^2 = 4^2 + 13^2 - 2(4)(13) \cos 112.49^\circ$ K1 $DC = 14.99$ N1</p> <p>(iii) Area of ADC = $\frac{1}{2} \times 4 \times 13 \times \sin 112.49^\circ$ K1 = 24.02 N1</p> <p>(b)  N1-shape N1-label</p>		10
14	<p>(a) $x + y \leq 80$ N1 $3x + 6y \leq 360$ or equivalent N1 $800x + 300y \geq 24\,000$ or equivalent N1</p> <p>(b) Refer graph 3</p> <p>(c) (i) Draw $x = 2y$ K1 $x = 52$, $y = 26$ N1 (both)</p> <p>(ii) $K_{\min} = 700(10) + 250(54)$ K1 (substitutd the point in R) = RM 20 500 N1</p>	3 4	10

15	<p>(a) $p_{96} = \frac{150.65}{110} \times 100$</p> <p style="padding-left: 40px;">$= \text{RM}136.95$</p> <p>(b) (i) $x + y = 55$</p> <p style="padding-left: 40px;">$\frac{110x + 120(30) + 125y + 150(15)}{100} = 121.25$</p> <p style="padding-left: 40px;">$15y = 225$ (Solve simultaneous equation)</p> <p style="padding-left: 40px;">$y = 15, x = 40$ (both)</p> <p>(ii) $p_{2000} = \frac{260}{100} \times 121.25$</p> <p style="padding-left: 40px;">$= \text{RM}315.25$</p> <p>(c) $I_{\frac{2004}{1996}} = \frac{126.50(40) + 108(30) + 125(15) + 150(15)}{100}$</p> <p style="padding-left: 40px;">$126.50, 108, 125, 150$ ($I_{\frac{2004}{1996}}$ for every item)</p> <p style="padding-left: 40px;">$= 124.25$</p>	<p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>P1</p> <p>N1</p>	<p>2</p> <p>3</p> <p>2</p> <p>3</p>	10
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