



**MODUL TOPIKAL
SOALAN PERCUBAAN SPM 2023**

**TOPIK TINGKATAN 4
BAB 7**

**GEOMETRI KOORDINAT
(*COORDINATE GEOMETRY*)**

**SUMBER SOALAN:
SOALAN – SOALAN PERCUBAAN**

TERENGGANU
NEGERI SEMBILAN
KELANTAN
SABAH
SBP
MELAKA
SELANGOR (MODUL PINTAS-SET 1)
PERAK

SKEMA JAWAPAN

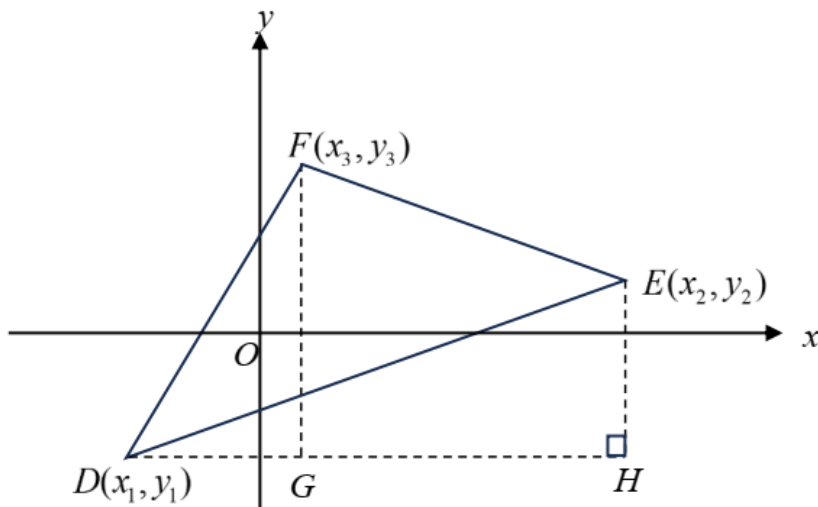
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PN ZAINAB BINTI ABD RAHMAN
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SOALAN 1 : SOALAN PERCUBAAN SPM NEGERI TERENGGANU 2023 (KERTAS 1)

8

(a)



Luas $\triangle DEF = \text{Luas } \triangle DFG + \text{Luas trapezium } EFGH - \text{Luas } \triangle DEH$

5

$$= \left(\frac{1}{2} \times DG \times FG \right) @ \left[\frac{1}{2} \times GH \times (EH + FG) \right] @ \left(\frac{1}{2} \times DH \times EH \right) \quad \mathbf{K1}$$

$$= \frac{1}{2} (x_3 - x_1)(y_3 - y_1) + \frac{1}{2} (x_2 - x_3)[(y_2 - y_1) + (y_3 - y_1)] - \frac{1}{2} (x_2 - x_1)(y_2 - y_1) \quad \mathbf{K1}$$

$$= \frac{1}{2} |(x_1y_2 + x_2y_3 + x_3y_1) - (x_2y_1 + x_3y_2 + x_1y_3)| \quad \mathbf{N1}$$

$$(b) \frac{1}{2} [(-6)(5) + 10(8) + 1(-5)] - [(-5)(10) + 5(1) + 8(-6)] \quad \mathbf{K1}$$

69

N1

SOALAN 2 : SOALAN PERCUBAAN SPM NEGERI TERENGGANU 2023 (KERTAS 2)

9	<p>(a) (i) $\frac{2}{3} \times m_1 = -1$ K1</p> <p>$2 = -\frac{3}{2}(0) + c$ & selesaikan @ setara</p> <p>ATAU $c = 2$ (DILIHAT) K1</p> <p>$y = -\frac{3}{2}x + 2$ N1</p> <p>(ii) $\frac{2}{3}x + \frac{19}{3} = -\frac{3}{2}x + 2$ & selesaikan K1</p> <p>$B(-2, 5)$ N1</p>	10
	<p>(b) $-2 = \frac{(n-m)(0) + m(-5)}{(n-m) + m}$ @ $5 = \frac{(n-m)(2) + m\left(\frac{19}{2}\right)}{(n-m) + m}$ @</p> <p>MENGGUNAKAN FORMULA JARAK DENGAN BETUL K1</p>	
	<p>Selesaikan $-2 = \frac{(n-m)(0) + m(-5)}{(n-m) + m}$ @ $5 = \frac{(n-m)(2) + m\left(\frac{19}{2}\right)}{(n-m) + m}$ @</p> <p>MENCARI NISBAH JARAK YANG SAH K1</p>	
	<p>$m : n = 2 : 5$ N1</p>	
	<p>(c) $\left[\sqrt{[x - (-2)]^2 + (y - 5)^2} = 3 \right]$ K1</p> <p>$x^2 + y^2 + 4x - 10y + 20 = 0$ N1</p>	

SOALAN 3 : SOALAN PERCUBAAN SPM NEGERI SEMBILAN 2023 (KERTAS 1)

10	(a)	$A(4,0)$ atau $B(0,4)$ atau $C(0,-4)$ atau lihat pintasan- x atau pintasan- y pada kedudukan yang betul pada rajah.	K1
		$\frac{x}{4} + \frac{y}{-4} = 1$ // $\frac{x}{4} - \frac{y}{4} = 1$	N1
	(b)	$\frac{1}{2} (0(0) + 4(-6) + 4(-5)) - (4(4) + 0(-5) + 0(-6)) $	K1
		30	N1
	(c)	$m_{AB} \times m_{AD}$ $\frac{4-0}{0-4} \times \frac{-6-0}{-5-4} = -\frac{2}{3}$ atau $-1 \times \frac{2}{3} = -\frac{2}{3}$	K1
		$m_{AB} \times m_{AD} \neq -1$, garis lurus AB tidak berserenjang dengan garis lurus AD .	N1

SOALAN 4 : SOALAN PERCUBAAN SPM NEGERI SEMBILAN 2023 (KERTAS 2)

11(b)(i)	$\frac{l(x) + 2(8)}{1 + 2} = 0$ atau $\frac{l(y) + 2(6)}{1 + 2} = \frac{50}{3}$	K1
	$Q(-16, 38)$	N1
11(b)(ii)	$38 = \frac{3}{4}(-16) + c$ atau $y - 38 = \frac{3}{4}(x - (-16))$	K1
	$y = \frac{3}{4}x + 50$	N1
11(c)	$\sqrt{(x - (-16))^2 + (y - 38)^2} = 4$	K1
	$x^2 + y^2 + 32x - 76y + 1684 = 0$	N1

SOALAN 5 : SOALAN PERCUBAAN SPM NEGERI KELANTAN 2023 (KERTAS 1)

14 (a)	(i) $2 \times m_{AB} = -1$ dan $m_{AB} = \frac{-1}{2}$ $y = \frac{-1}{2}x - 4$ (ii) $2x - 9 = -\frac{1}{2}x - 4$ $x = 2$ $C = (2, -5)$	K1 N1 K1 K1 N1	
14 (b)	$B(7, 5)$ $\frac{1}{2} ((0 \times 5) + (7 \times -5) + (2 \times -1) + (-6 \times 5)) - ((5 \times 7) + (5 \times 2) + (-5 \times -6) + (-1 \times 0)) $ 71 unit ²	P1 K1 N1	8

SOALAN 6 : SOALAN PERCUBAAN SPM NEGERI KELANTAN 2023 (KERTAS 2)

5(a)	$C\left(-\frac{2}{3}, 2\right)$ $\frac{2n + \left(-\frac{2}{3}\right)m}{m+n} = 0$ atau $\frac{-2n + 2m}{m+n} = 1$ 3:1	P1 K1 N1	
5(b)(i)	$PB = \frac{1}{2}PE$ $\sqrt{(x-0)^2 + (y-4)^2} = \frac{1}{2}\sqrt{(x-2)^2 + (y-(-2))^2}$ $3x^2 + 3y^2 + 4x - 36y + 56 = 0$	P1 K1 N1	8

SOALAN 7 : SOALAN PERCUBAAN SPM NEGERI SABAH 2023 (KERTAS 1)

4	a) $m_1 = -\frac{1}{8}$ atau $m_2 = 8$ atau setara Guna $m_1 \times m_2 = -1$ $\left((4(2)^3 - p(2)) \left(-\frac{1}{8} \right) = -1 \right)$ atau $8 = 4x^3 - px$ $p = 12$	K1 N1	6
	b) Kamirkan y terhadap x $y = \frac{4x^4}{4} - \frac{12x^2}{2} + c$ Ganti (2, 5) ke dalam *kamiran & Selesaikan untuk c $5 = (2)^4 - 6(2)^2 + c$ $c = 13$ $y = x^4 - 6x^2 + 13$	K1 K1 N1	

SOALAN 8 : SOALAN PERCUBAAN SPM NEGERI SABAH 2023 (KERTAS 1)

15	a) $-2 \times m_{BC} = -1$ atau $(-2) \left(-\frac{3}{\beta} \right) = -1$ -6	K1 N1	8
	b) $(-6, 15)$	N1	
	c) $\frac{1}{2} [-6(3) + 0(0) + (-6)(15)] - [0(15) + (-6)(3) + (-6)(0)]$ 45	K1 N1	
	d) $\sqrt{(x-0)^2 + (y-3)^2}$ atau $\sqrt{(-6-0)^2 + (0-3)^2}$ $\sqrt{(x-0)^2 + (y-3)^2} = \sqrt{(-6-0)^2 + (0-3)^2}$ atau $\sqrt{(x-0)^2 + (y-3)^2} = \sqrt{45}$ atau $x^2 + y^2 - 6y + 9 = 45$ atau setara $x^2 + y^2 - 6y - 36 = 0$	K1 K1 N1	

SOALAN 10 : SOALAN PERCUBAAN SPM SBP 2023 (KERTAS 1)

4(a) Mencari kecerunan BC & guna $m_1 \times m_2 = -1$ **K1**

$$m_{AB} \times \left(\frac{6-0}{0-3} \right) = -1$$

$$\frac{6-0}{0-x} = \frac{1}{2} \quad @ \quad \frac{0-y}{*-12-0} = -2 \quad \mathbf{K1}$$

$A(-12,0)$, $D(0,-24)$ **N1**

(b) $\sqrt{(x-0)^2 + (y-0)^2} = 10$ @ setara **K1**

$$x^2 + y^2 - 100 = 0 \quad \mathbf{N1}$$

3

2

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SOALAN 11 : SOALAN PERCUBAAN SPM SBP 2023 (KERTAS 2)

<p>9(a)(i)</p>	<p>$y - (-2) = -1(x - 0)$ @ $-2 = -1(0) + c$ & selesaikan untuk c K1</p> <p>$y = -x - 2$ N1</p>	<p>2</p>
<p>(a)(ii)</p>	<p><u>Mencari kecerunan PQ & guna $m_1 \times m_2 = -1$</u></p> <p>$m \times \left(\frac{-1 - (-2)}{3 - 0} \right) = -1$ K1</p> <p>$y - 3 = * - 3(x - (-1))$ @ $-3 = * - 3(-1) + c$ & selesaikan untuk c K1</p> <p>$y = -3x$ N1</p>	<p>3</p>
<p>(b)</p>	<p>$\left(\frac{m-1}{2}, \frac{3+n}{2} \right)$ N1</p>	<p>1</p>
<p>(c)</p>	<p><u>Guna rumus luas segi tiga</u></p> <p>$\frac{1}{2} (-1(-1) + 3(-2) + 0(3)) - (3(3) + (-1)(0) + (-2)(-1))$ K1</p> <p>8 N1</p> <p>$4 * (8)$ N1</p> <p>32 N1</p>	<p>4</p>

SOALAN 12 : SOALAN PERCUBAAN SPM NEGERI MELAKA 2023 (KERTAS 1)

1 (a)	$\tan \theta_1 = \tan \theta_2$ $m_1 = m_2$ shown	1 1	
(b)	$m_{PQ} = \frac{-2-1}{1-(-6)}$ or $m_{RS} = \frac{h-5}{-3-0}$ $\frac{-2-1}{1-(-6)} \times \frac{h-5}{-3-0} = -1$ $h = -2$	1 1 1	5

SOALAN 13 : SOALAN PERCUBAAN SPM NEGERI MELAKA 2023 (KERTAS 2)

3(a)	Pembahagi dua sama serenjang bagi PQ // perpendicular bisector of PQ	1	
(b) i	Titik tengah AB, $M = (-2,5)$ Titik bergerak $P(x, y)$ $BM = \sqrt{(-2-1)^2 + (5-1)^2}$ atau $AM = \sqrt{(-5+2)^2 + (9-5)^2}$ $PM = \sqrt{(x+2)^2 + (y-5)^2}$ Gunakan $PM = AM$ atau BM $\sqrt{(x+2)^2 + (y-5)^2} = 5$ $x^2 + y^2 + 4x - 10y + 4 = 0$ OR $\left(\frac{y-9}{x+5}\right)$ or $\left(\frac{y-1}{x-1}\right)$ $\left(\frac{y-9}{x+5}\right)\left(\frac{y-1}{x-1}\right) = -1$ $y^2 - 10y + 9 = -x^2 - 4x + 5$ $x^2 + y^2 + 4x - 10y + 4 = 0$	1 1 1 1	8
(b) ii	$y^2 - 10y + 4 = 0$ $y = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(1)(4)}}{2(1)}$ Pintasan $-y = 9.583$ dan $y = 0.4174$	1 1 1	

SOALAN 14 : SOALAN PERCUBAAN SPM NEGERI SELANGOR SET 1 2023 (KERTAS 1)

6			$2SD = 3DG$ $\frac{SD}{DG} = \frac{3}{2}$ $D = \left(\frac{1(12) + 2(3)}{1+2}, \frac{1(7) + 2(1)}{1+2} \right)$ $(6,3)$ $SD = \sqrt{(6-3)^2 + (3-1)^2}$ $\sqrt{13} \text{ atau } 3.6055$	K1 N1 K1 N1	
					4

SOALAN 15 : SOALAN PERCUBAAN SPM NEGERI SELANGOR SET 1 2023 (KERTAS 2)

4	(a)	(i)	$\left(\frac{3x+11}{1+3}, \frac{3y+10}{1+3} \right) = (2,4)$ $\frac{3x+11}{4} = 2 \text{ atau } \frac{3y+10}{1+3} = 4$ $x = -1 \quad y = 2$ $A(-1,2)$	K1 N1	
		(ii)	$\frac{1}{2} \begin{vmatrix} 0 & 15 & 14 & -5 & 0 \\ 0 & 1 & 18 & 3 & 0 \end{vmatrix}$ $\frac{1}{2} ((0)(1) + (15)(18) + (14)(3) + (-5)(0)) - ((15)(0) + (14)(1) + (-5)(18) + (0)(3)) $ $\frac{1}{2} 388 $ 194	K2 N1	
	(b)		$\sqrt{(x-11)^2 + (y-10)^2} = 3$ $(x-11)^2 + (y-10)^2 = 9$ $x^2 + y^2 - 22x - 20y + 212 = 0$	K1 N1	
					7

SOALAN 16 : SOALAN PERCUBAAN SPM NEGERI PERAK 2023 (KERTAS 1)

13	(a)	(i)	Persamaan BC $4 = \frac{1}{2}(-1) + c$ $\frac{1}{2}x + \frac{9}{2} = \frac{3}{2}x - \frac{1}{2}$ $C(5,7)$	atau	Persamaan AC $1 = \frac{3}{2}(1) + c$	1	
						1	
						1	
							8
(ii)	Tidak boleh. (Layak mendapat markah sekiranya ada justifikasi yang betul diberi).					1	
	Gantikan (3,4) dalam persamaan AC $4 = \frac{3}{2}(3) - \frac{1}{2}$ $4 = 4$ (mesti berjaya tunjukkan)						
	Kerana pondok rehat itu akan berada di atas garisan tanah sempadan.					1	
	Bulatan.					1	
	$\sqrt{(x-1)^2 + (y-3)^2} = 1$					1	
	$x^2 + y^2 - 2x - 6y + 9 = 0$					1	

SOALAN 17 : SOALAN PERCUBAAN SPM NEGERI PERAK 2023 (KERTAS 2)

4	(a)	$\frac{y-4}{x-(-2)} = \frac{10-4}{10-(-2)}$ atau $y = \frac{1}{2}x + c$ dan mencari nilai $c=5$ $y = \frac{1}{2}x + 5$	1	9
			1	
	(b)	$y = -2x + 20$ $-2x + 20 = \frac{1}{2}x + 5$ (6,8)	1	
			1	
	(c)	$\frac{n(-2) + m(10)}{m+n} = 6$ atau $\frac{n(4) + m(10)}{m+n} = 8$ * boleh gunakan selain m dan n * m dan n boleh saling bertukar 2:1	1	
			1	
	(d)	$\frac{1}{2} \left [(3)(4) + (-2)(-10) + (15)(10) + (10)(14)] \right $ $\frac{1}{2} \left -[(14)(-2) + (4)(15) + (-10)(10) + (10)(3)] \right $ 180unit ²	1	
			1	