



**MODUL TOPIKAL
SOALAN PERCUBAAN SPM 2023**

TOPIK TINGKATAN 5

BAB 1

**SUKATAN MEMBULAT
(*CIRCULAR MEASURE*)**

**SUMBER SOALAN:
SOALAN – SOALAN PERCUBAAN**

TERENGGANU
NEGERI SEMBILAN
KELANTAN
SABAH
SBP
MELAKA
SELANGOR SET 1
PERAK

SKEMA JAWAPAN

DISUSUN OLEH:

PN. NOORUL HUDA BINTI MOHD HASHIM
(SMK TAMAN TASIK, TAIPING)

PN ZAINAB BINTI ABD RAHMAN
(SMK CONVENT, TAIPING)

SOALAN 1 : SOALAN PERCUBAAN SPM NEGERI TERENGGANU 2023 (KERTAS 1)

1	$\frac{m}{2}\pi$ atau $m\pi$	P1	2
	$\frac{m}{2}\pi < s < m\pi$	N1	

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

6	(a)	$24^2 = 13^2 + 13^2 - 2(13)(13)\cos\angle BOQ$ @		8
		$\sin\frac{\angle BOQ}{2} = \frac{\left(\frac{24}{2}\right)}{13}$ @ setara	K1	
		2.352	N1	
	(b)	$\tan\left(\frac{*134.76^\circ}{2}\right) = \frac{BR}{13}$ @ $S_{BAQ} = 13(2\pi - *2.352)$	K1	
		*31.20 + *31.20 + *51.12	K1	
		113.52	N1	
	(c)	$\frac{1}{2}(13)^2 \sin *134.76^\circ$ @ $\frac{1}{2}(13)^2 (*0.79)$	K1	
		$\frac{1}{2}(13)^2 \sin *134.76^\circ + \frac{1}{2}(13)^2 (*0.79)$ @ setara	K1	
	126.76	N1		

SOALAN 3 : SOALAN PERCUBAAN SPM NEGERI SEMBILAN 2023 (KERTAS 2)

5(a)	60° atau 120° dilihat	P1
	$\frac{2\pi}{3}$	N1
5(b)	$\cos 60^\circ = \frac{8}{OA}$ atau $\sin 60^\circ = \frac{AE}{16}$ atau $\tan 60^\circ = \frac{AE}{8}$ atau $OA = 16$	K1
	$AB = 2(16) \sin 60^\circ$ atau $AB^2 = 16^2 + 16^2 - 2(16)(16) \cos 120^\circ$ atau $AB = 2(8) \tan 60^\circ$ atau $AB = 2(16) \sin 60^\circ$ atau $16\left(\frac{2\pi}{3}\right)$	K1
	$2(16) \sin 60^\circ + 16\left(\frac{2\pi}{3}\right)$ atau setara	K1
	61.22 ↔ 61.23	N1
		6 markah

SOALAN 4 : SOALAN PERCUBAAN SPM NEGERI KELANTAN 2023 (KERTAS 1)

15 (b)	Panjang lengkok JKL = 4.794(3.6) = 17.2584 cm atau	K1
	Panjang lengkok JM/ML = 5 (1)	
	Perimeter kawasan berlorek = 17.2584 + 5 + 5 = 27.2584 cm	N1
15 (c)	Luas sektor JKL = $\frac{1}{2}(4.794)^2(3.6) = 41.3684 \text{ cm}^2$ atau	K1
	Luas segitiga PJM / QML = $\frac{1}{2}(5)^2 \sin 57.29^\circ = 10.5177 \text{ cm}^2$	
	atau	
	Luas sektor PJM = $\frac{1}{2}(5)^2(1) = 12.5 \text{ cm}^2$	
	Luas tembereng JM / ML = 12.5 - 10.5177 = 1.9823	
	Luas Rantau Berlorek = 41.3684 - 2(1.9823) = 37.4038 cm ²	N1
		8

SOALAN 5 : SOALAN PERCUBAAN SPM NEGERI KELANTAN 2023 (KERTAS 2)

3(a)	$10.47 = 15\theta$ $\theta = 0.698 \text{ rad}$ Bilangan keratan = $\frac{2 \times 3.142}{0.698} = 9$ keratan	K1 N1 N1	7
3(b)	$2 \times \frac{1}{2} \times 15^2 \times 0.698 = 157.05$ $10.47(8) = 83.76$ atau $2 \times 15 \times 8 = 240$ Jumlah luas Permukaan = $157.05 + 83.76 + 240$ 480.81 cm^2	K1 K1 K1 N1	

SOALAN 6 : SOALAN PERCUBAAN SPM NEGERI SABAH 2023 (KERTAS 1)

7	a) $\frac{4}{9}\pi$ rad atau 1.396 rad	N1	7
	b) $x + x + x(\frac{4}{9}\pi) = 33.97$ $x = 10$	K1 N1	
	$\frac{1}{2} (10)(10) \sin 80$ atau $0.4924 (10)^2$	K1	
	$\frac{1}{2} (y)^2 (\frac{4}{9}\pi)$ atau $0.698y^2$	K1	
	$\frac{1}{2} (10)(10) \sin 80 - \frac{1}{2} (y)^2 (\frac{4}{9}\pi) = 15.03$ atau $0.4924 (10)^2 - 0.698y^2 = 15.03$ atau setara $y = 7$	K1 N1	

SOALAN 7 : SOALAN PERCUBAAN SPM SBP 2023 (KERTAS 1)

<p>14(a)</p>	<p>$\frac{r}{\sin \theta}$ dilihat K1</p> <p>$R = r \left(1 + \frac{1}{\sin \theta} \right)$ N1</p>	<p>2</p>	
<p>(b)</p>	<p>Luas sektor = $\frac{1}{2}(3r)^2 \left(\frac{\pi}{3} \right) = \frac{3}{2}\pi r^2$ K1</p> <p>$\frac{\pi r^2}{\frac{3}{2}\pi r^2}$ K1</p> <p>$\frac{2}{3}$ N1</p>	<p>3</p>	
<p>(c)</p>	<p>Panjang lengkok = $5 \left(\frac{2\pi}{3} \right)$ @ $\frac{5}{\tan 30^\circ}$ K1</p> <p>$\frac{10\pi}{3} + 2(5\sqrt{3})$ K1</p> <p>27.79 m N1</p>	<p>3</p>	<p>8</p>

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

2	(a)	$\frac{L}{\pi j^2} = \frac{\theta}{2\pi}$	1	5
		$L = \frac{1}{2}j^2\theta$	1	
	(b)	$\frac{1}{2} \times 6^2 \times \left(\frac{2\pi}{3}\right)$ atau $\frac{1}{2} \times 6 \times 6 \sin 120^\circ$	1	
		$\left[\frac{1}{2} \times 6^2 \times \left(\frac{2\pi}{3}\right) - \frac{1}{2} \times 6 \times 6 \sin 120^\circ\right] \times 3$	1	
		$L = 36\pi - 27\sqrt{3}$	1	

SOALAN 9: SOALAN PERCUBAAN SPM NEGERI MELAKA 2023 (KERTAS 2)

5	(a)	1.746	1	7
	(b)	$6 \times (2\pi - 1.746)$	1	
		27.23	1	
	(c)	<i>Luas sektor AOB</i> , $A_1 = \frac{1}{2}(6)^2 \left(130 \times \frac{\pi}{180}\right)$	1	
		<i>Luas segitiga AOB</i> , $A_2 = \frac{1}{2} \times 6 \times 6 \times \sin 130^\circ$	1	
$(A_1 - A_2) \times 2$		1		
	54.11	1		
	OR other valid method			

SOALAN 10 : SOALAN PERCUBAAN SPM NEGERI SELANGOR SET 1 2023 (KERTAS 1)

12	(a)		$1.1\theta = \frac{21}{27}$	K1	
			0.7071	N1	
	(b)		$21 = (1.1 + x)0.7071$; x merujuk pada $UW @ SV$	K1	
			$21 + \frac{21}{27} + 2(29.7 - 1.1)$ 78.98	K1 N1	
	(c)		$21 = ST (0.7071)$	K1	
			$ST = 29.7 \text{ m}$ $A = \frac{1}{2}(29.7)^2(0.7071) - \frac{1}{2}(1.1)^2(0.7071)$ 311.44	K1 N1	
					8

SOALAN 11: SOALAN PERCUBAAN SPM NEGERI PERAK 2023 (KERTAS 1)

9	(a)	$CD = 60.72 - 12 - 12 - 8 - 8$ $AB = 20.72$ $20.72^2 = 12^2 + 12^2 - 2(12)(12)\cos\theta$ $\theta = 119.39^\circ$ $\theta = 2.084 \text{ rad}$	1	7
			1	
			1	
			1	
	(b)	$S = (2.5)(3.928)$ $S = 9.82$ $9.82 = 4.8\theta$ $\theta = 2.046 \text{ rad}$ $\text{Luas} = \frac{1}{2}(4.8)^2(2.046)$ $\text{Luas} = 23.57$	1	
			1	
			1	
			1	

SOALAN 12 : SOALAN PERCUBAAN SPM NEGERI PERAK 2023 (KERTAS 2)

8	(a)	<p>K (0, 4) and M (3, 0) and</p> <p>Jarak PK / PM / KM :</p> $\sqrt{(3.5 - 0)^2 + (3.5 - 4)^2} / \sqrt{(3.5 - 3)^2 + (3.5 - 0)^2} / \sqrt{4^2 + 3^2}$ $(5)^2 = (\sqrt{12.5})^2 + (\sqrt{12.5})^2 - 2(\sqrt{12.5})(\sqrt{12.5}) \cos \cos \angle KPM$ <p>$\angle KPM = 90^\circ = \frac{\pi}{2}$ radian</p>	1	1	1	10
	(b) i	<p>$s_Q = (\sqrt{12.5})(\frac{\pi}{2}) // s_O = (\frac{5}{2})(\pi)$</p> <p>Perimeter = $s_Q + s_O$</p> <p>13.409 unit</p>	1	1	1	
		<p>ii</p> <p>$A_1 = \frac{1}{2}[(3.142)(2.5^2)]$ or $A_2 = \frac{1}{2}(\sqrt{12.5})^2(\frac{3.142}{2})$</p> <p>$A_3 = \frac{1}{2}(\sqrt{12.5})(\sqrt{12.5})$</p> <p><i>Luas kawasan berlerek</i> = $A_1^* - (A_2^* - A_3^*)$</p> <p>6.25 unit²</p>	1	1	1	1