



MODUL TOPIKAL
SOALAN PERCUBAAN SPM 2023

TOPIK TINGKATAN 4
BAB 9

PENYELESAIAN SEGI TIGA
(*SOLUTION OF TRIANGLES*)

SUMBER SOALAN:
SOALAN – SOALAN PERCUBAAN

TERENGGANU
NEGERI SEMBILAN
KELANTAN
SABAH
SBP
MELAKA
SELANGOR (MODUL PINTAS-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 2)

12 (a) (i) $7^2 = 5^2 + 8^2 - 2(5)(8)\cos \angle BDC$ **K1**

60° **N1**

(ii) $\frac{AD}{\sin 40^\circ} = \frac{12}{\sin 60^\circ}$ **K1**

8.907 **N1**

(iii) Luas $\triangle ABD = \frac{1}{2} \times 5 \times 8.907 \times \sin 120^\circ$ @

Luas $\triangle BDC = \frac{1}{2} \times 8 \times 5 \times \sin 60^\circ$ **K1**

$19.284 + 17.321$ **K1**

36.61 **N1**

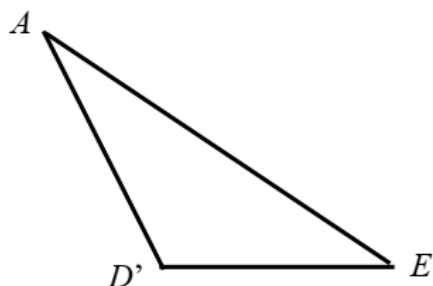
@

Mencari $\angle BCD$ menggunakan Petua Sinus @
Petua Kosinus **K1**

Luas $\triangle ABD = \frac{1}{2} \times 7 \times (8.907 + 8) \times \sin 38.21^\circ$ **K1**

36.60 **N1**

(b)



N1

Luas $\triangle AD'E = \frac{1}{2} \times 12 \times 8.907 \times \sin 20^\circ$ **K1**

18.28 **N1**

10

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

12(a)(i)	$7.78^2 = 7.22^2 + 5.30^2 - 2(7.22)(5.30) \cos \angle PAQ$	N1
	75.09	N1
12(a)(ii)	$\frac{\sin \angle APQ}{7.22} = \frac{\sin \angle 75.09^\circ}{7.78}$ atau	K1
	$7.22^2 = 7.78^2 + 5.30^2 - 2(7.78)(5.30) \cos \angle APQ$	
	63.74°	N1
12(a)(iii)	$\frac{1}{2}(5.30)(7.22) \sin 75.09^\circ$ atau	K1
	$\sqrt{10.15(10.15 - 5.30)(10.15 - 7.22)(10.15 - 7.78)}$	N1
	18.49	
12(b)(i)	$\left(\frac{5}{3}\right)^2 \times 18.49$ atau $\frac{1}{2} \times 8.833 \times 12.033 \times \sin 75.09^\circ$	K1
	51.36 atau 51.35	N1
12(b)(ii)	$\frac{1}{2} \times h \times \left(\frac{5}{3} \times 7.78\right) = 51.36$ atau $\frac{1}{2} \times 12.97 \times h = 51.35$	K1
	7.922 atau 7.918	N1
		10 markah

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

12 (a)	$CF = \sqrt{10^2 + 8^2} \text{ atau } CM = \sqrt{14^2 + 5^2} \text{ atau}$ $FM = \sqrt{8^2 + 14.87^2}$ $CF = 12.81 \text{ atau } CM = 14.87 \text{ atau } FM = 16.89$ $16.89^2 = 14.87^2 + 12.81^2 - 2(14.87)(12.81)\cos\angle FCM$ 74.79°	P1 N1 K1 N1	10
12 (b)	$\frac{\sin \angle CMF}{12.81} = \frac{\sin 74.79^\circ}{16.89}$ $\angle CMF = 47.04^\circ$	K1 N1	
12 (c)	$\text{luas FCM} = \frac{1}{2}(16.89)(14.87)\sin 47.04^\circ \text{ atau}$ $\text{luas FCM} = \frac{1}{2}(12.81)(14.87)\sin 74.79^\circ \text{ atau}$ $\text{luas FCM} = \frac{1}{2}(16.89)(12.81)\sin 58.17^\circ$ $91.90 / 91.91 \text{ cm}^2$	K1 N1	
12 (d)	$\frac{1}{2} \times h \times 12.81 = 91.90 \text{ atau } \frac{1}{2} \times h \times 12.81 = 91.91$ $h = 14.35 \text{ cm}$	K1 N1	

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

12

a) i)

$$PR^2 = 8^2 + 17^2 - 2(8)(17)\cos 118^\circ$$

21.92

K1

N1

ii)

$$\frac{8}{\sin \angle PRQ} = \frac{21.92}{\sin 118^\circ} \text{ or } \frac{\sin \angle PRQ}{8} = \frac{\sin 118^\circ}{21.92}$$

K1

N1

18.80°

iii) $\frac{1}{2}(8)(17)\sin 118^\circ$ or $\sqrt{27.46(27.46 - 21.92)(27.46 - 13)(27.46 - 20)}$

K1

$$\frac{1}{2}(8)(17)\sin 118^\circ + \sqrt{27.46(27.46 - 21.92)(27.46 - 13)(27.46 - 20)}$$

K1

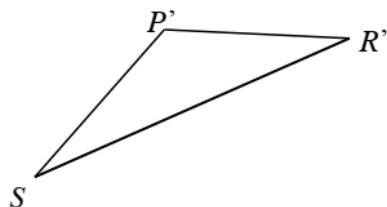
or 60.04 + 128.10 or equivalent

188.14

N1

10

b) i)



Nota:

1. $\angle S'P'R'$ adalah sudut cakah
2. Sisi-sisi dilakarkan dengan pembaris

N1

N1

ii)

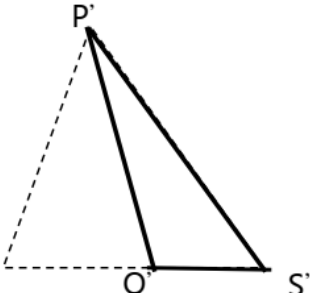
137.10

N1

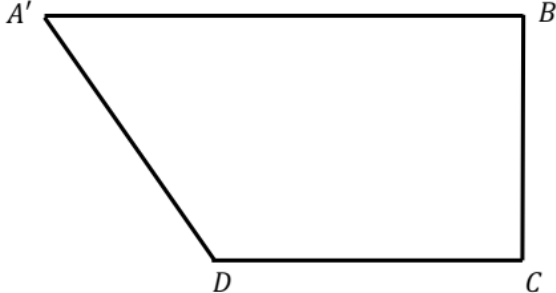
SOALAN 5 : SOALAN PERCUBAAN SPM SBP 2023 (KERTAS 2)

13(a)	$(\sqrt{m})^2 = (21)^2 + (19.5)^2 - 2(21)(19.5)\cos 64$ <p style="text-align: right;">K1</p> <p>462.22 N1</p>	2	
(b)	$\frac{\sin \angle RSQ}{19.5} = \frac{\sin 64}{21.50}$ <p style="text-align: right;">K1</p> <p>54.61 N1</p>	2	
(c)	$ST^2 = 12^2 + 5^2 \quad @ \quad QT^2 = 10^2 + 5^2$ <p style="text-align: right;">K1</p> <p>4</p> <p>Kaedah 1 <u>Guna rumus luas</u></p> $\sqrt{462.22} = (13)^2 + (11.18)^2 - 2(13)(11.18)\cos \angle STQ$ <p style="text-align: right;">K1</p> $\frac{1}{2}(13)(11.18)\sin 125.37$ <p style="text-align: right;">K1</p> <p>59.26 N1</p> <p>Kaedah 2 <u>Guna rumus Heron</u></p> $s = \frac{13 + 11.18 + 21.50}{2}$ <p style="text-align: right;">P1</p> $\sqrt{(22.84^*)(22.84^* - 13)(22.84^* - 11.18)(22.84^* - 21.50)}$ <p style="text-align: right;">K1</p> <p>59.26 N1</p>	4	
(d)	$\frac{1}{2}(h)(21.50) = 59.26$ <p style="text-align: right;">K1</p> <p>5.513 N1</p>	2	
			10

SOALAN 6 : SOALAN PERCUBAAN SPM MELAKA 2023 (KERTAS 2)

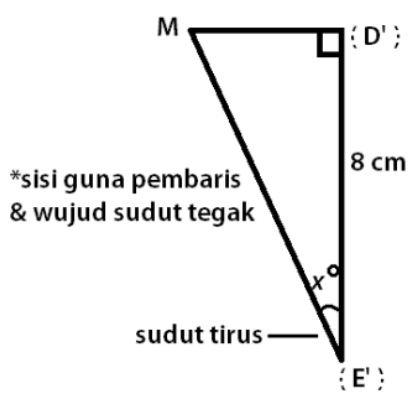
12 (a) i	$PS = \sqrt{90^2 + 80^2}$ $= 120.42$	1	10
(a) ii	$PQ = \sqrt{90^2 + 60^2}$ $= 108.17$	1	
(b)	$(108.17)^2 = (100)^2 + (120.42)^2 - 2(100)(120.42)\cos\angle PSQ$ $\angle PSQ = 57.89^\circ$	1 1	
(c)	$Area = \sqrt{164.295(164.295 - 100)(164.295 - 108.17)(164.295 - 120.42)}$ $= 5100.20$	1 1	
(d)		1	
	$\frac{\sin Q}{120.42} = \frac{\sin 57.89}{108.17}$ $Q = 70.55^\circ$ $O' = 180 - 70.55^\circ = 109.45^\circ$	1 1 1	

SOALAN 7 : SOALAN PERCUBAAN SPM SELANGOR SET 1 2023 (KERTAS 2)

13	(a)	(i)	$(5)^2 = (4)^2 + (7)^2 - 2(4)(7) \cos \angle ABD$ 44.42°	K1 N1
		(ii)	$\frac{BC}{\sin 44.42^\circ} = \frac{7}{\sin 110^\circ}$ 5.214	K1 N1
	(b)	(i)		N1
		(ii)	$\frac{\sin \angle BAD}{7} = \frac{\sin 44.42^\circ}{5} \quad @ \quad \cos^{-1} \left(\frac{4^2 + 5^2 - 7^2}{2(4)(5)} \right)$ 78.49° $\angle BAD = 180^\circ - 78.49^\circ = 101.51^\circ \quad @ \quad 101.54^\circ$ $\angle A'DA = 23.02^\circ \quad @ \quad 23.07^\circ$	K1 N1 K1
			$\Delta AA'D = \frac{1}{2} \times 5 \times 5 \times \sin 23.02^\circ$ $4.898 \quad @ \quad 4.899$	K1 N1
				10

SOALAN 8 : SOALAN PERCUBAAN SPM NEGERI PERAK 2023 (KERTAS 2)

13	(a)	i	$(\sqrt{p})^2 = (10)^2 - (8)^2$ $p = 36$	1	10
		ii	$(\sqrt{36})^2 = (10)^2 + (10)^2 - 2(10)(10)\cos AMB$	1	
			$\angle AMB = 34.92^\circ \text{ or } 34^\circ 55'$	1	
			$\text{Area, } A_{ABM} = \frac{1}{2}(10)(10) \sin 34.92$	1	
			28.622 cm ²	1	

(b)	 <p>*sisi guna pembaris & wujud sudut tegak</p> <p>sudut tirus — x°</p>	1	10	
		sesi bertentangan, $MD' = \sqrt{(6)^2 - (3)^2}$		1
		$\tan x^\circ = \frac{5.1962}{8}$		1
		33.00°		1