

# TINGKATAN 4

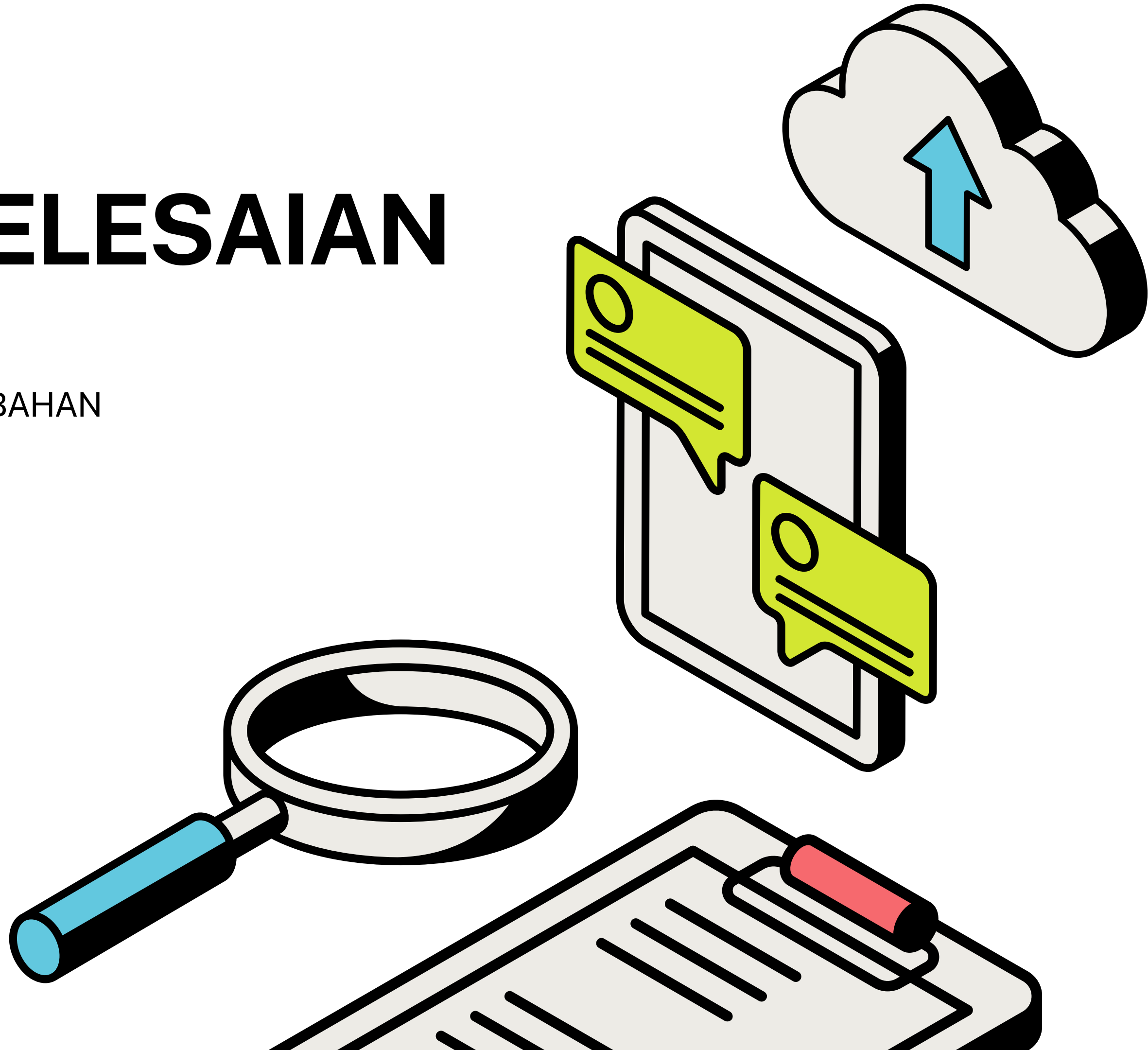
# BAB 9: PENYELESAIAN

# SEGI TIGA

KOMPILASI SOALAN MATEMATIK TAMBAHAN  
PERCUBAAN SPM 2023

**SKEMA PEMARKAHAN**

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**KELANTAN (K1)****PENYELESAIAN SEGI TIGA**

7. Encik Salleh mempunyai sebidang tanah berbentuk segi tiga. Dua sisi tanah tersebut mempunyai panjang  $(2x+10)$  m dan  $(5x-20)$  m masing-masing. Sudut di antara kedua-dua sisi tersebut ialah  $30^\circ$ . Cari panjang kedua-dua sisi tanah tersebut dalam integer terhampir, jika luas tanah tersebut ialah  $1700 \text{ m}^2$ . [5 markah]

*Mr. Salleh has a triangular piece of land. The two sides of the land have lengths  $(2x+10)$  m and  $(5x-20)$  m respectively. The angle between the two sides is  $30^\circ$ . Find the length of both sides of the land to the nearest integer, if the area of the land is  $1700 \text{ m}^2$ .*

[5 marks]

7	$\frac{1}{2}(2x+10)(5x-20)\sin 30^\circ = 1700$	K1
	$x = \frac{-5 \pm \sqrt{5^2 - 4(5)(-3500)}}{2(5)}$	K1
	$x = 26$	N1
	62 m	N1
	110 m	N1

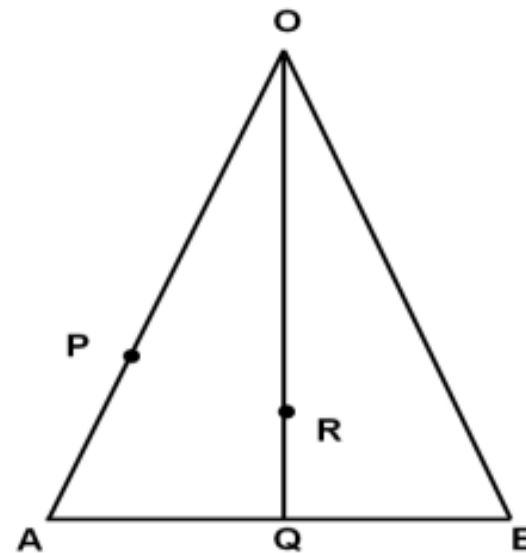
**KELANTAN (K2)****PENYELESAIAN SEGI TIGA**

8

Dalam rajah 5,  $OAB$  ialah sebuah segitiga. Diberi  $\overrightarrow{OP} = \frac{2}{3}\overrightarrow{OA}$ ,  $\overrightarrow{AB} = 2\overrightarrow{AQ}$ ,  $\overrightarrow{OR} = \frac{4}{5}\overrightarrow{OQ}$ ,

$\overrightarrow{OA} = 9h$  dan  $\overrightarrow{OB} = 4k$ .

In diagram 5,  $OAB$  is a triangle. Given that  $\overrightarrow{OP} = \frac{2}{3}\overrightarrow{OA}$ ,  $\overrightarrow{AB} = 2\overrightarrow{AQ}$ ,  $\overrightarrow{OR} = \frac{4}{5}\overrightarrow{OQ}$ ,  $\overrightarrow{OA} = 9h$  and  $\overrightarrow{OB} = 4k$ .



Rajah 5  
Diagram 5

(a) Ungkapkan dalam sebutan  $h$  dan/atau  $k$ .

Express, in terms of  $h$  and/or  $k$ .

(i)  $\overrightarrow{PB}$

(ii)  $\overrightarrow{OQ}$

[3 markah]

[3 marks]

(b) Seterusnya, buktikan bahawa titik  $P$ ,  $R$  dan  $B$  adalah segaris.

Hence, prove that points  $P$ ,  $R$  and  $B$  are collinear.

[4 markah]

[4 marks]

(c) Diberi luas  $PAB$  ialah  $12 \text{ cm}^2$  ialah, cari luas segitiga  $OAB$ .

Given the area of triangle  $PAB$  is  $12 \text{ cm}^2$ , find the area of  $OAB$ .

[3 markah]

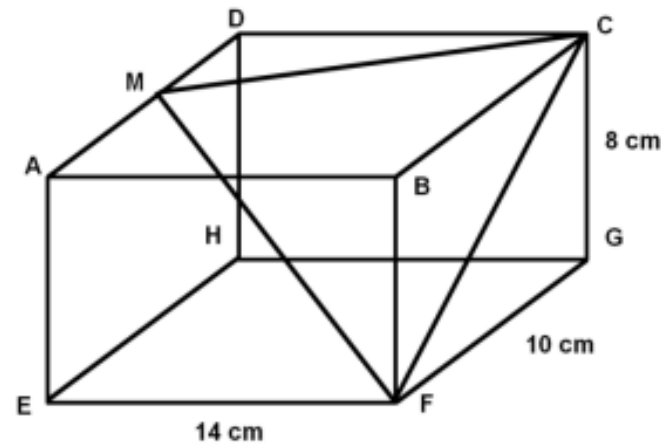
[3 marks]

8 (a)	$\overrightarrow{PB} = \overrightarrow{PO} + \overrightarrow{OB}$ atau $\overrightarrow{PB} = \overrightarrow{PA} + \overrightarrow{AB}$ atau $\overrightarrow{OQ} = \overrightarrow{OA} + \overrightarrow{AQ}$ $\overrightarrow{PB} = -6h + 4k$ $\overrightarrow{OQ} = \frac{9}{2}h + 2k$	P1 N1 N1
8 (b)	$\overrightarrow{PR} = -\frac{12}{5}h + \frac{8}{5}k$ atau setara $-\frac{12}{5} = -6\lambda$ dan $\frac{8}{5} = 4\lambda$ $\lambda = \frac{2}{5}$ atau setara $\overrightarrow{PR} = \frac{2}{5}\overrightarrow{PB}$ atau setara	K1 K1 K1 N1
(c)	$\frac{1}{2} 3h h = 12$ atau $\frac{1}{2}(3PA)h$ atau $\frac{OAB}{PAB} = \frac{3}{1}$ $\frac{1}{2} 9h \left(\frac{8}{ h }\right)$ atau $3 \times 12$ atau $OAB = 3(12)$ 36	K1 K1 N1

**KELANTAN (K2)****PENYELESAIAN SEGI TIGA**

12 Rajah 9 menunjukkan sebuah kuboid  $ABCDEFGH$ .

Diagram 9 shows two triangles  $ABCDEF$  and  $ABCD$ .



Rajah 9

Diagram 9

Diberi  $EF = 14$  cm,  $FG = 10$  cm, dan  $CG = 8$  cm.  $M$  ialah titik tengah bagi  $AD$ .

Given  $EF = 14$  cm,  $FG = 10$  cm, and  $CG = 8$  cm.  $M$  is a midpoint of  $AD$ .

Cari

Find

- (a)  $\angle FCM$  [4 markah] [4 marks]
- (b)  $\angle CMF$  [2 markah] [2 marks]
- (c) Luas bagi segitiga  $FCM$ . [2 markah]  
The area of triangle  $FCM$ . [2 marks]
- (d) Jarak terdekat dari  $M$  ke  $CF$ . [2 markah]  
The shortest distance from  $M$  to  $CF$ . [2 marks]

12 (a)	$CF = \sqrt{10^2 + 8^2} \text{ atau } CM = \sqrt{14^2 + 5^2} \text{ atau}$ $FM = \sqrt{8^2 + 14.87^2}$ $CF = 12.81 \text{ atau } CM = 14.87 \text{ atau } FM = 16.89$ $16.89^2 = 14.87^2 + 12.81^2 - 2(14.87)(12.81)\cos\angle FCM$ $74.79^\circ$	P1 N1 K1 N1
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

**MELAKA (K2)****PENYELESAIAN SEGI TIGA**

- 12 Rajah 6 menunjukkan sebuah bangunan yang berbentuk piramid dengan tapak segi tiga QTS.  
Diagram 6 shows a building pyramid in shaped with the base QTS.

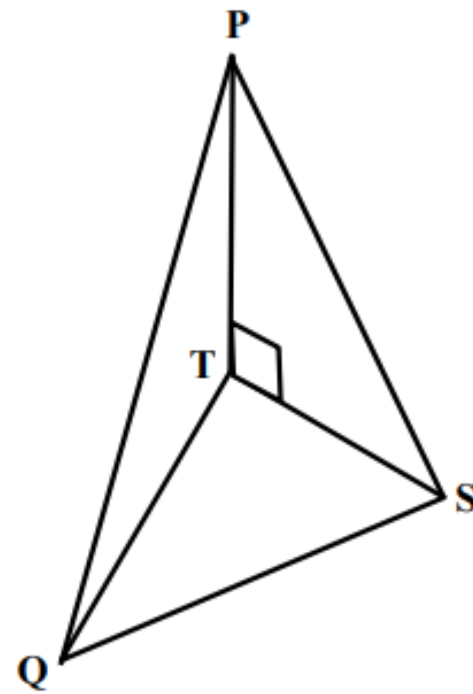


Diagram 6 / Rajah 6

Diberi  $QT = 60\text{m}$ ,  $TS = 80\text{m}$  and  $QS = 100\text{m}$ . Puncak P berada 90 m tegak di atas T.  
Sekumpulan pekerja perlu cat permukaan condong dinding PQS,  
Given  $QT = 60\text{m}$ ,  $TS = 80\text{m}$  and  $QS = 100\text{m}$ . The vertex P is 90 m vertically above T. A group of workers have to paint the inclined wall PQS,

- (a) Cari panjang sisi dalam m, bagi yang berikut  
Find the side length in m, for the following  
(i) PS  
(ii) PQ

[2 markah/marks]

- (b) Hitung sudut  $\angle PSQ$   
Calculate  $\angle PSQ$

[2 markah/marks]

- (c) Dengan menggunakan rumus Heron, cari luas permukaan condong dinding yang perlu di cat  
By using Heron's formula, find the area of the painted inclined wall.

[2 markah/marks]

- (d) (i) Lakarkan sebuah segitiga  $P'Q'S'$  yang mempunyai bentuk berbeza daripada segi tiga

PQS dengan keadaan  $P'Q' = PQ$ ,  $P'S' = PS$  dan  $\angle P'S'Q' = \angle PSQ$

Sketch a triangle  $P'Q'S'$  which has a different shape from triangle PQS such that

$P'Q' = PQ$ ,  $P'S' = PS$  and  $\angle P'S'Q' = \angle PSQ$

[1 markah/mark]

- (ii) Cari  $\angle P'Q'S'$

Find  $\angle P'Q'S'$

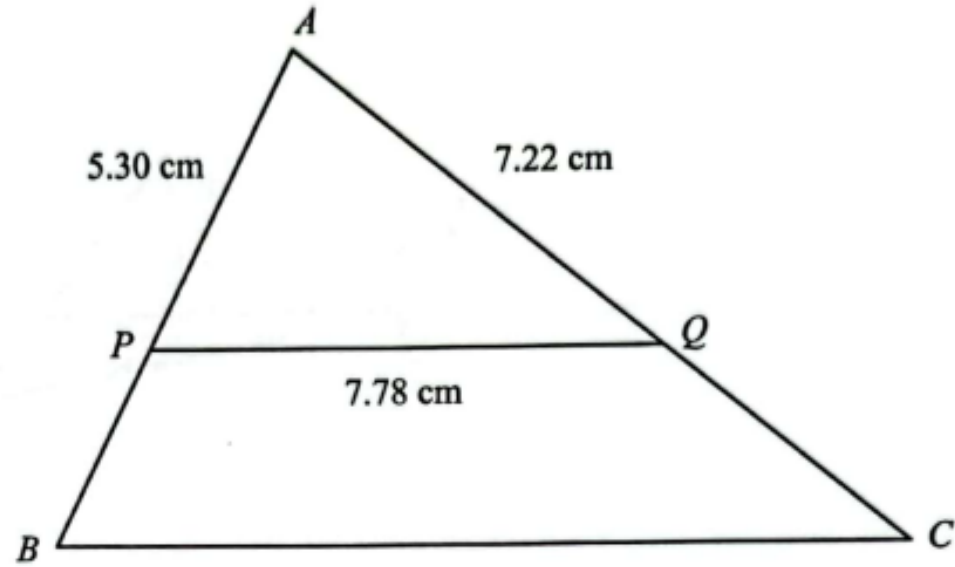
[3 markah/marks]

12 (a) i	$PS = \sqrt{90^2 + 80^2}$ $= 120.42$	1
(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
	$\frac{\sin Q}{120.42} = \frac{\sin 57.89}{108.17}$	1
	$Q = 70.55^\circ$	1
	$Q' = 180 - 70.55^\circ = 109.45^\circ$	1

**N 9 (K2)**

**PENYELESAIAN SEGI TIGA**

12 Rajah 7 menunjukkan sebuah segi tiga  $ABC$ .  $APB$  dan  $AQC$  adalah garis lurus dan garis  $PQ$  adalah selari dengan garis  $BC$ .  
 Diagram 7 shows a triangle  $ABC$ .  $APB$  and  $AQC$  are straight lines and line  $PQ$  is parallel to the line  $BC$ .



Rajah 7  
Diagram 7

- (a) Cari  
Find  
 (i)  $\angle PAQ$ ,  
 (ii)  $\angle APQ$ ,  
 (iii) luas, dalam  $\text{cm}^2$ , segitiga  $APQ$ .  
 the area of triangle  $APQ$ , in  $\text{cm}^2$ .

[6 markah]  
[6 marks]

- (b) Diberi bahawa  $AP : PB = 3 : 2$ , cari  
 Given that  $AP : PB = 3 : 2$ , find  
 (i) luas segitiga  $ABC$ ,  
 the area of triangle  $ABC$ ,  
 (ii) jarak terpendek dari bucu  $A$  ke garis lurus  $BC$ .  
 the shortest distance from vertex  $A$  to the straight line  $BC$ .

[4 markah]  
[4 marks]

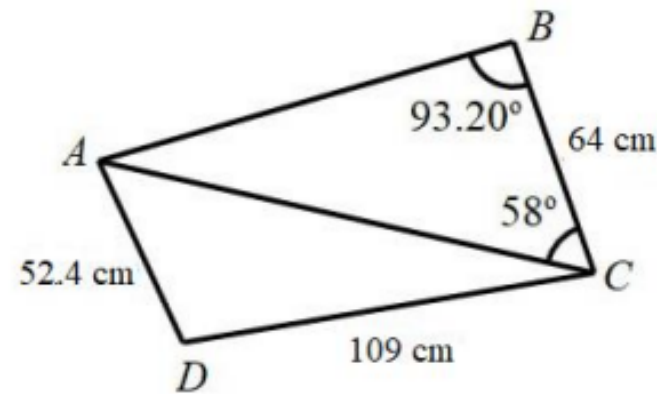
12(a)(i)	$7.78^2 = 7.22^2 + 5.30^2 - 2(7.22)(5.30) \cos \angle PAQ$	K1
	75.09	N1
12(a)(ii)	$\frac{\sin \angle APQ}{7.22} = \frac{\sin 75.09^\circ}{7.78}$ atau $7.22^2 = 7.78^2 + 5.30^2 - 2(7.78)(5.30) \cos \angle APQ$	K1
	63.74°	N1
12(a)(iii)	$\frac{1}{2}(5.30)(7.22) \sin 75.09^\circ$ atau $\sqrt{10.15(10.15 - 5.30)(10.15 - 7.22)(10.15 - 7.78)}$	K1
	18.49	N1
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

## PAHANG (K2)

## PENYELESAIAN SEGI TIGA

- 13 Rajah 6 menunjukkan sebuah sisi empat  $ABCD$ . Diberi bahawa  $\angle ADC$  ialah sudut cakah.

Diagram 6 shows a quadrilateral of  $ABCD$ . Given that  $\angle ADC$  is an obtuse angle.



Rajah 6  
Diagram 6

- (a) Tanpa sebarang pengiraan, nyatakan titik yang paling jauh dari titik  $A$ . Berikan sebab kepada jawapan anda.

Without any calculation, state the point, which is the furthest from point  $A$ .

Give reason for your answer.

[1 markah]

[1 mark]

- (b) Kirakan

Calculate

- (i)  $\angle ADC$ ,  
(ii) luas kawasan, dalam  $\text{cm}^2$ , sisi empat  $ABCD$ .

area of region, in  $\text{cm}^2$ , the quadrilateral of  $ABCD$ .

[6 markah]

[6 marks]

- (c) Garis  $CD$  dipanjangkan kepada titik  $E$  dengan keadaan titik  $E$  ialah titik yang berada pada jarak yang paling dekat dari  $A$  ke  $CD$ .

Line  $CD$  is extended to point  $E$  such as point  $E$  is a point that lies at a shortest distance from  $A$  to  $CD$ .

- (i) Pada Rajah 6, tandakan titik  $E$ .

On Diagram 6, mark point  $E$ .

- (ii) Cari jarak terdekat  $E$  dari  $A$  ke  $CD$ .

Find the shortest distance of  $E$  from  $A$  to  $CD$ .

[3 markah]

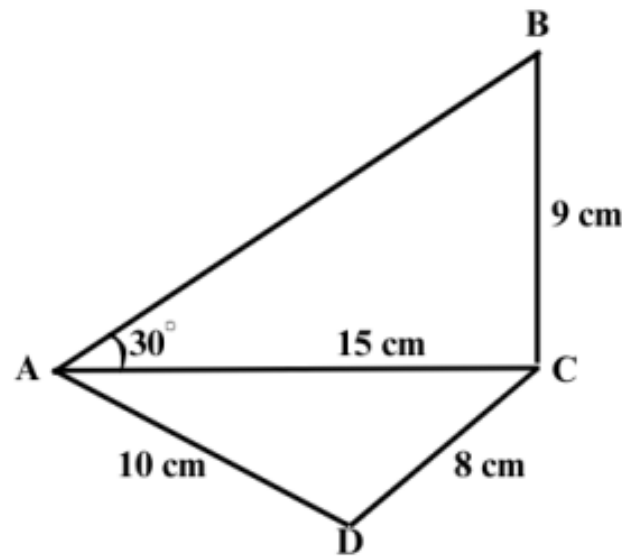
[3 marks]

13	(a)	Titik $C$  $AC$ adalah garis terpanjang kerana sudut bertentangnya adalah sudut terbesar bagi kedua-dua segitiga $ABC$ dan $ADC$ .	1
	(b)	(i) $\frac{AC}{\sin 93.20^\circ} = \frac{64}{\sin (180^\circ - 93.20^\circ - 58^\circ)}$  $(*AC)^2 = 52.4^2 + 109^2 - 2(52.4)(109)\cos \angle ADC$  $105.05^\circ$ atau setara	1 1 1
		(ii) $\frac{1}{2}(52.4)(109)\sin (*105.05^\circ)$  atau $\frac{1}{2}(64)(*132.64)\sin (58^\circ)$  $\frac{1}{2}(52.4)(109)\sin (*105.05^\circ) + \frac{1}{2}(64)(*132.64)\sin (58^\circ)$  $6357.37$	1 1 1
	(c)	(i)	1
		$\frac{1}{2} \times AE \times 109 = *2757.84$	1
		50.60	1

**PERLIS (K2)**

**PENYELESAIAN SEGI TIGA**

14 Rajah 14 menunjukkan sisi empat ABCD di mana  $\angle ABC$  adalah sudut tirus.  
 Diagram 14 shows a quadrilateral ABCD such that  $\angle ABC$  is an acute angle.



Rajah 14 / Diagram 14

(a) Kira / Calculate

(i)  $\angle ABC$

(ii)  $\angle ADC$

(iii) luas, dalam  $\text{cm}^2$ , sisi empat ABCD.  
 the area, in  $\text{cm}^2$ , of the quadrilateral ABCD.

[ 8 markah / marks ]

(b) Segi tiga  $AB'C$  mempunyai ukuran yang sama seperti segi tiga ABC, iaitu  $AC = 15 \text{ cm}$ ,  $CB' = 9 \text{ cm}$  dan  $\angle B'AC = 30^\circ$  tetapi dalam bentuk yang berbeza.

The triangle  $AB'C$  has the same measurement as the triangle ABC, which is  $AC = 15 \text{ cm}$ ,  $CB' = 9 \text{ cm}$  and  $\angle B'AC = 30^\circ$  but in different shape.

(i) Lakar segi tiga  $AB'C$ .

Sketch the triangle  $AB'C$ .

(ii) Seterusnya, nyatakan saiz  $\angle AB'C$ .

Hence, state the size of  $\angle AB'C$ .

[ 2 markah / marks ]

14

(a)

(i)

$$\frac{\sin \angle ABC}{15} = \frac{\sin 30^\circ}{9}$$

(K1)

$$56.44^\circ$$

(N1)

2

(ii)

$$15^2 = 10^2 + 8^2 - 2(10)(8)\cos \angle ADC$$

(K1)

$$112.41^\circ$$

(N1)

2

(iii)

$$\angle ACB = 180^\circ - 30^\circ - 56.44^\circ$$

(P1)

$$A_1 = \frac{1}{2}(8)(10) \sin * 112.41^\circ \text{ atau}$$

(K1)

$$A_2 = \frac{1}{2}(15)(9) \sin * 93.56^\circ$$

$$*A_1 + *A_2$$

(K1)

$$104.35 \text{ cm}^2$$

(N1)

4

(b)

(i)



(N1)

$\angle AB'C$  sudut cakah

NMA

1

(ii)

$$123.56^\circ$$

(N1)

1

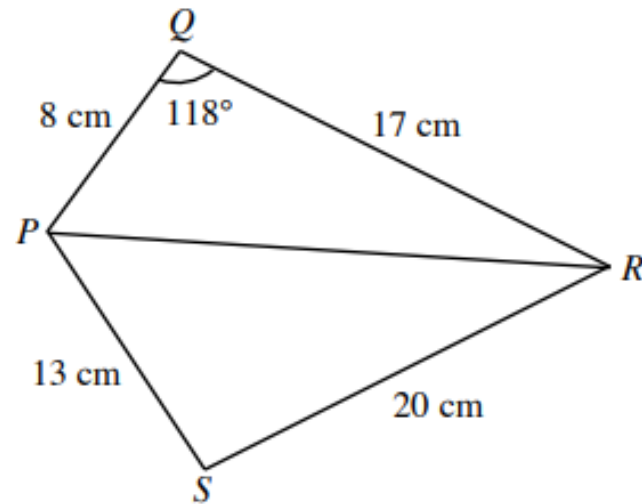


## SABAH (K2)

## PENYELESAIAN SEGI TIGA

12. Rajah 12 menunjukkan sisi empat PQRS.

Diagram 12 shows a quadrilateral PQRS.



Rajah 12/Diagram 12

a) Cari

Find

- (i) panjang, dalam cm,  $PR$ ,  
the length, in cm,  $PR$ ,

[2 markah/marks]

- (ii)  $\angle PRQ$ ,

[2 markah/marks]

- (iii) luas, dalam  $\text{cm}^2$ , sisi empat PQRS.  
the area, in  $\text{cm}^2$ , of quadrilateral PQRS.

[3 markah/marks]

- b) (i) Lakarkan segi tiga  $P'R'S'$  yang mempunyai bentuk berbeza daripada segi tiga  $PRS$  dengan keadaan  $P'$  terletak pada  $PR$  dan  $\sin \angle RPS = \sin \angle R'P'S'$ .

Sketch triangle  $P'R'S'$  which has a different shape from triangle  $PRS$  such that  $P'$  lies on  $PR$  and  $\sin \angle RPS = \sin \angle R'P'S'$ .

[2 markah/marks]

- (ii) Seterusnya, nyatakan saiz  $\angle R'P'S'$ .  
Hence, state the size of  $\angle R'P'S'$ .

[1 markah/mark]

12

a) i)

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

21.92

ii)

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

18.80°

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

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

$$\text{or } 60.04 + 128.10 \text{ or equivalent}$$

188.14

K1

N1

K1

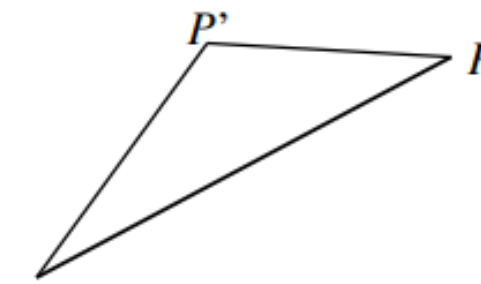
N1

K1

K1

N1

b) i)



Nota:

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

ii)

115.96

N1

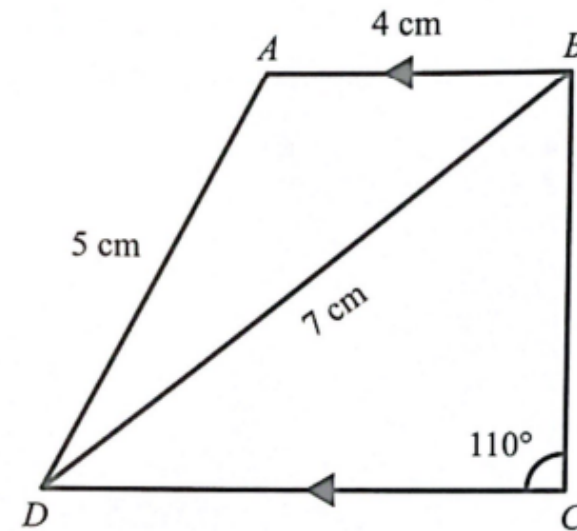
N1

N1

**SELANGOR SET 1 (K2)****PENYELESAIAN SEGI TIGA**

- 13 Penyelesaian secara lukisan berskala tidak diterima.  
Solutions by scale drawing is not accepted.

Rajah 13 menunjukkan sebuah trapezium  $ABCD$ .  
Diagram 13 shows trapezium  $ABCD$ .



Rajah 13  
Diagram 13

- (a) Hitung  
Calculate

- (i)  $\angle ABD$ ,  
(ii) panjang, dalam cm, bagi  $BC$ .  
the length, in cm, of  $BC$ .

[4 markah]  
[4 marks]

- (b) Garis lurus  $BA$  dipanjangkan ke  $A'$  dengan keadaan  $AD = A'D$ .  
The straight line  $BA$  is extended to  $A'$  such that  $AD = A'D$ .

- (i) Lakar trapezium  $A'BCD$ .  
Sketch the trapezium  $A'BCD$ .  
(ii) Hitung luas, dalam  $\text{cm}^2$ , bagi  $\triangle AA'D$ .  
Calculate the area, in  $\text{cm}^2$ , of  $\triangle AA'D$ .

[6 markah]  
[6 marks]

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

## SELANGOR SET 2 (K2)

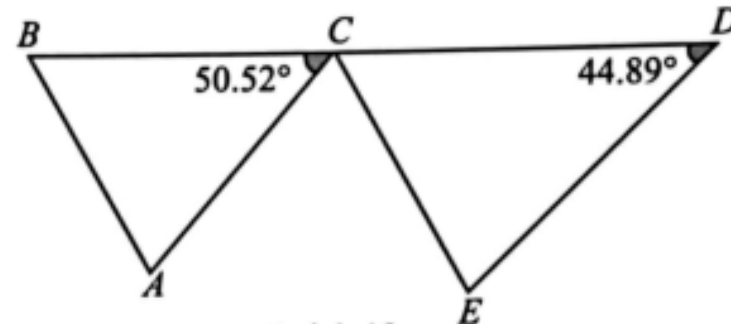
## PENYELESAIAN SEGI TIGA

12 Penyelesaian secara lukisan berskala tidak akan diterima.

*Solution by scale drawing will not be accepted.*

Rajah 12 menunjukkan dua buah segi tiga  $ABC$  dan  $CDE$  dengan keadaan  $BCD$  ialah garis lurus.

*Diagram 12 shows two triangles  $ABC$  and  $CDE$  such that  $BCD$  is a straight line.*



Rajah 12  
Diagram 12

Diberi bahawa  $AC = 4.916$  cm,  $BC = 5.280$  cm,  $DE = 6.025$  cm dan garis  $AB$  adalah selari dengan garis  $EC$ .

*It is given that  $AC = 4.916$  cm,  $BC = 5.280$  cm,  $DE = 6.025$  cm and line  $AB$  is parallel to line  $EC$ .*

(a) Hitung

*Calculate*

- panjang, dalam cm, bagi  $AB$ , betul sehingga tiga tempat perpuluhan,  
*the length, in cm, of  $AB$ , correct to three decimal places,*
- $\angle DCE$ ,
- luas, dalam  $\text{cm}^2$ , bagi segi tiga  $CDE$ .  
*area, in  $\text{cm}^2$ , of the triangle  $CDE$ .*

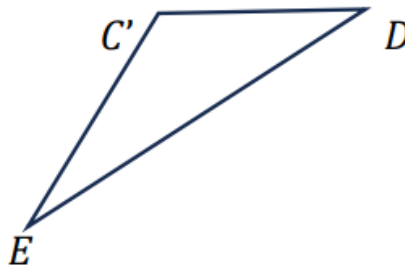
[8 markah]  
[8 marks]

(b) Titik  $C'$  terletak pada  $CD$  dengan keadaan  $CE = C'E$ .

*Point  $C'$  lies on  $CD$  such that  $CE = C'E$ .*

- Lakar dan label segi tiga  $C'DE$ .  
*Sketch and label the triangle  $C'DE$ .*
- Nyatakan nilai bagi  $\angle DC'E$ .  
*State the value of  $\angle DC'E$ .*

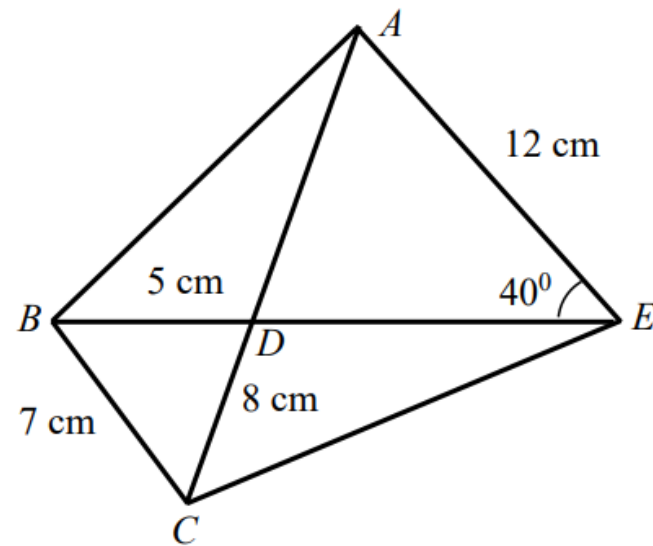
[2 markah]

12	(a) (i)	$AB^2 = 5.280^2 + 4.916^2 - (2 \times 5.280 \times 4.916 \times \cos 50.52^\circ)$ $AB = 4.363$	K1 N1
	(ii)	$\frac{\sin \angle BAC}{5.280} = \frac{\sin 50.52^\circ}{4.363} @ \frac{\sin \angle ABC}{4.916} = \frac{\sin 50.52^\circ}{4.363}$	K1
		$\angle BAC = 69.08^\circ$ $\angle DCE = 180^\circ - 50.52^\circ - 69.08^\circ$ $60.40^\circ @ 60.42^\circ$	N1
	(iii)	$\angle DEC = 180^\circ - 60.40^\circ - 44.89^\circ$ $74.71^\circ$ $\frac{CE}{\sin 44.89^\circ} = \frac{6.025}{\sin 60.40^\circ}$ $CE = 4.890$  $\text{Luas } \Delta DCE = \frac{1}{2} \times 4.890 \times 6.025 \times \sin 74.71^\circ$ $14.21$	K1 K1 N1
	(b) (i)	 <p>Nota: 1. <math>\angle DC'E</math> adalah cakah 2. Sisi-sisi dilakar</p>	N1 (NMA)
	(ii)	$\angle DC'E = 180^\circ - 60.40^\circ$ $119.60^\circ @ 119.58^\circ$	N1 (NMA)

## TERENGGANU (K2)

## PENYELESAIAN SEGI TIGA

- 12 Dalam Rajah 5,  $BD = 5$  cm,  $BC = 7$  cm,  $CD = 8$  cm,  $AE = 12$  cm dan  $\angle AEB = 40^\circ$ .  
In Diagram 5,  $BD = 5$  cm,  $BC = 7$  cm,  $CD = 8$  cm,  $AE = 12$  cm and  $\angle AEB = 40^\circ$ .

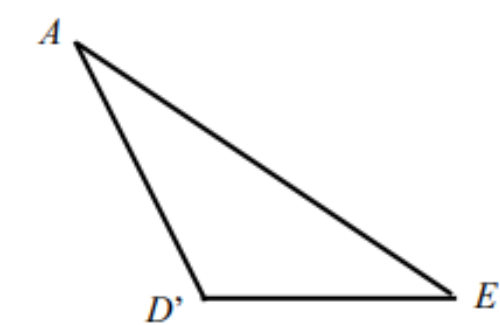


Rajah 5  
Diagram 5

- (a) Hitung  
Calculate
- $\angle BDC$
  - panjang, dalam cm,  $AD$ ,  
the length, in cm, of  $AD$ ,
  - luas, dalam  $\text{cm}^2$ , segitiga  $ABC$ .  
the area, in  $\text{cm}^2$ , of triangle  $ABC$ .
- (b) Titik  $D'$  terletak pada  $BE$  dengan keadaan  $AD' = AD$ .  
Point  $D'$  lies on  $BE$  such that  $AD' = AD$ .
- Lakar  $\triangle AD'E$ .  
Sketch  $\triangle AD'E$ .
  - Hitung luas, dalam  $\text{cm}^2$ ,  $\triangle AD'E$ .  
Calculate the area, in  $\text{cm}^2$ ,  $\triangle AD'E$ .

[7 markah]  
[7 marks]

[3 markah]

12	(a)	(i)	$7^2 = 5^2 + 8^2 - 2(5)(8)\cos \angle BDC$	K1
			$60^\circ$	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