Jawapan

Bab 13

1. (a) WY

(b) q, t

2. Luas segi empat sama *FGHJ*
Area of square FGHJ

= Luas segi empat sama *ABCJ* *Area of square ABCJ* + Luas segi empat sama *CDEF* *Area of square CDEF*

Teorem Pythagoras / *Pythagoras Theorem*:

$JF^2 = CJ^2 + CF^2$

3. (a) $PQ^2 = PS^2 + QS^2$

(b) $e^2 = f^2 + g^2$

4. (a) $x^2 = 6^2 + 8^2$
$= 36 + 64$
$= 100$
$x = \sqrt{100}$
$= 10$

(b) $17^2 = x^2 + 8^2$
$x^2 = 17^2 - 8^2$
$= 289 - 64$
$= 225$
$x = \sqrt{225}$
$= 15$

5. (a) $26^2 = AB^2 + 24^2$
$AB^2 = 26^2 - 24^2$
$AB = \sqrt{100}$
$= 10$ cm

$10^2 = 7^2 + x^2$
$x = \sqrt{51}$
$= 7.14$

(b) $30^2 = HG^2 + 24^2$
$HG^2 = 30^2 - 24^2$
$HG = \sqrt{324}$
$= 18$ cm

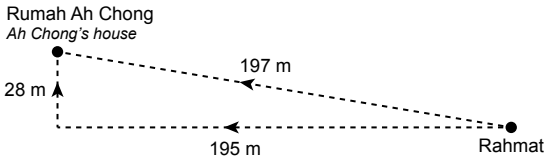
$x^2 = 24^2 + 36^2$
$x = \sqrt{1\,872}$
$= 43.27$

6. **Aktiviti PAK-21**

7. (a) Tinggi bahagian atas tiang dari tanah
The height of top of the pole from the ground
$= \sqrt{5^2 - 1.4^2}$
$= \sqrt{23.04}$
$= 4.8$ cm

Tinggi tiang / *The height of the pole*
$= 4.8$ m $- 0.13$ m
$= 4.67$ m

(b) Jarak melintas padang
Distance of passing through the field
$= \sqrt{195^2 + 28^2}$
$= \sqrt{38\,809}$
$= 197$ m



Jarak melalui jalan raya / *Distance via the road*
$= 195 + 28$
$= 223$ m

Beza jarak / *Difference in distance*
$= 223 - 197$
$= 26$ m

Maka, berjalan melintas padang lebih cepat berbanding melalui jalan raya dengan beza jarak 26 m.
Hence, walking passing through the field is faster than via the road with the difference of 26 m.

(c) $15^2 = PT^2 + 9^2$
$PT^2 = 15^2 - 9^2$
$PT = \sqrt{144}$
$= 12$ m

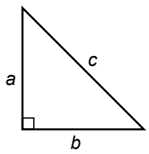
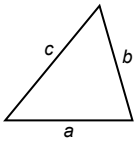
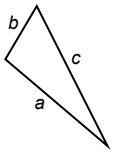
$QS = PT = 12$ cm

$SR = 30 - 9 - 16$
$= 5$ m

$QR^2 = 12^2 + 5^2$
$QR = \sqrt{169}$
$= 13$ m

Panjang pagar yang diperlukan
Length of the fence needed
$= 15 + 16 + 13 + 30$
$= 74$ m

8.

Segi tiga *Triangle*	Segi tiga bersudut tegak *Right-angled triangle*	as	Segi tiga bersudut tirus *Acute-angled triangle*	as	Segi tiga bersudut cakah *Obtuse-angled triangle*
					
Faktor penghubung *Relating factor*	$a^2 + b^2 \boxed{=} c^2$		$a^2 + b^2 \boxed{>} c^2$		$a^2 + b^2 \boxed{<} c^2$

9. Sisi terpanjang = AC
The longest side = AC
$= AC^2$
$= 17^2$
$= 289$

$AB^2 + BC^2 = 8^2 + 15^2$
$= 289$

$AC^2 = AB^2 + BC^2$
$17^2 = 8^2 + 15^2$

Jawapan / *Answer*: **D**

10. (a) Sisi terpanjang, $c = 7$ cm
The longest side, c = 7 cm
$c^2 = 7^2 = 49$
$a = 3, b = 4$
$a^2 + b^2 = 3^2 + 4^2 = 25$
$3^2 + 4^2 \neq 7^2$
PQR bukan segi tiga bersudut tegak.
PQR is not a right-angled triangle.

(b) Sisi terpanjang, $c = 3.5$ cm
The longest side, c = 3.5 cm
$c^2 = 3.5^2 = 12.25$
$a = 2.8, b = 2.1$
$a^2 + b^2 = 2.8^2 + 2.1^2 = 12.25$
$2.8^2 + 2.1^2 = 3.5^2$
KLM adalah segi tiga bersudut tegak.
KLM is a right-angled triangle.

(c) Sisi terpanjang, $c = 10$ cm
The longest side, c = 10 cm
$c^2 = 10^2 = 100$
$a = 8, b = 6$
$a^2 + b^2 = 8^2 + 6^2 = 100$
$8^2 + 6^2 = 10^2$
TUV adalah segi tiga bersudut tegak.
TUV is a right-angled triangle.

11. (a) Sisi terpanjang
The longest side
$= EC$
$EC^2 = 12^2 + 16^2 = 400$
$AE = 16 - 12 = 4$ cm
$AF = 16 \div 2 = 8$ cm
$EF^2 = 4^2 + 8^2 = 80$
$FC^2 = 8^2 + 16^2 = 320$
$EF^2 + FC^2 = 80 + 320$
$= 400$

$EC^2 = EF^2 + FC^2$
Maka, CEF ialah segi tiga bersudut tegak.
Hence, CEF is a right-angled triangle.

(b) Sisi terpanjang / *The longest side* = 206 cm
$206^2 = 42\,436$

$187^2 + 84^2 = 42\,025$
$187^2 + 84^2 \neq 206^2$

Maka, bingkai tingkap itu bukan berbentuk segi empat tepat.
Hence, the window frame is not in rectangular shape.

(c) Sisi terpanjang / *The longest side*
$= JK^2 = 1.3^2 = 1.69$

$LK = 1 \div 2$
$= 0.5$ m

$JL^2 + LK^2 = 1.2^2 + 0.5^2 = 1.69$

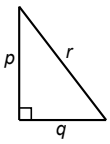
$JK^2 = JL^2 + LK^2$

Maka, khemah itu didirikan tegak di atas tanah.
Hence, the tent is erected in an upright position on the ground.

Praktis Masteri 13

BAHAGIAN A

1.



r ialah hipotenus
r is the hypotenuse
$\therefore r^2 = p^2 + q^2$

Jawapan / *Answer*: **C**

2. $QS^2 = 4^2 + 3^2$
$= 16 + 9$
$= 25$

$QS = \sqrt{25}$
$= 5$ cm

$PQ^2 = 12^2 + 5^2$
$= 144 + 25$
$= 169$

$PQ = \sqrt{169}$
$= 13$ cm

Jawapan / *Answer*: **D**

3. Panjang sisi / *Length of side*

$= \sqrt{\left(\frac{8}{2}\right)^2 + \left(\frac{6}{2}\right)^2}$

$= \sqrt{4^2 + 3^2}$

$= \sqrt{16 + 9}$

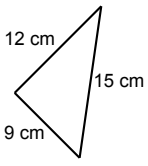
$= \sqrt{25}$

$= 5$ cm

Perimeter $= 5$ cm $\times 4$
$= 20$ cm

Jawapan / *Answer*: **C**

4.



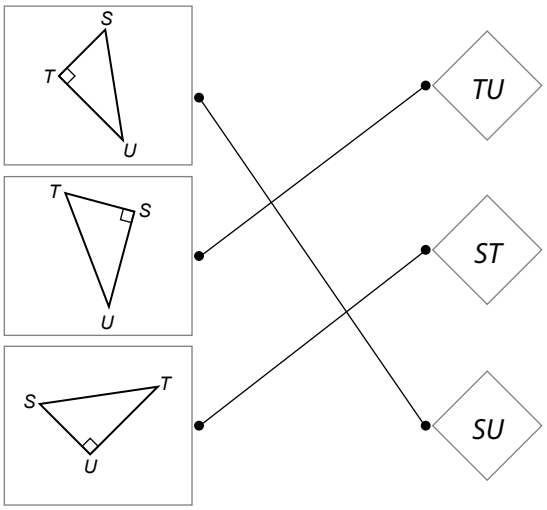
$12^2 + 9^2$
$= 144 + 81$
$= 225$ cm

$\sqrt{225}$
$= 15$ cm

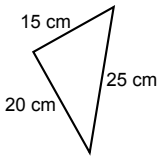
Jawapan / *Answer*: **C**

BAHAGIAN B

5. (a)



(b)



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BAHAGIAN C

6. (a) Panjang sisi *AB* / *Length of side AB* $= \sqrt{225}$
$= 15$ cm

Panjang sisi *BC* / *Length of side BC* $= \sqrt{64}$
$= 8$ cm

Panjang sisi *AC* / *Length of side AC* $= \sqrt{8^2 + 15^2}$
$= 17$ cm

Panjang sisi dengan luas 100 cm^2
Length of side with an area of 100 cm^2
$= \sqrt{100}$
$= 10$ cm

Panjang sisi segi empat sama yang mempunyai luas *x* cm^2
Length of side of the square with area of x cm^2
$= 17 - 10$
$= 7$ cm

(b) $QR^2 = \left(2\sqrt{13}\right)^2 - 4^2$

$QR = \sqrt{36}$

$= 6$ cm

$\frac{PQ}{QR} = \frac{1}{2}$

$PQ = \frac{1}{2} \times 6$

$= 3$ cm

$PR = 3 + 6$

$= 9$ cm

(c) (i) $10^2 + 24^2 = 676$

$= 26^2$

Tidak. Farhana perlu memotong dawai 2 cm daripada dawai 28 cm.
No. Farhana has to cut 2 cm *from the* 28 cm *wire.*
[Terima mana-mana jawapan yang munasabah]
[*Accept any reasonable answer*]

(ii) $10^2 + 11^2 = 221$

$12^2 = 144$

$144 < 221$

$12^2 < 10^2 + 11^2$

Sudut yang bertentangan dengan sisi 12 cm ialah sudut tirus. Maka, segi tiga itu ialah segi tiga bersudut tirus.
The angle opposite to side 12 cm *is an acute angle. Thus, the triangle is an acute-angled triangle.*

7. (a) $169 = 25 + 144$

$13^2 = 5^2 + 12^2$

Maka, tiga segi empat sama yang dapat disusun dengan tepat ialah *P*, *Q* dan *S*.
Thus, three squares that can be arranged exactly are P, Q and S.

(b) $13^2 = 5^2 + AC^2$

$AC^2 = 13^2 - 5^2$

$= 144$

$AC = \sqrt{144}$

$= 12$ cm

$AD = 12 + 5$

$= 17$ cm

$17^2 = ED^2 + 10^2$

$ED^2 = 17^2 - 10^2$

$= 189$

$ED = \sqrt{189}$

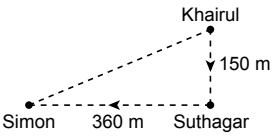
$= 13.75$ cm

(c) (i) $p^2 = 5^2 + 6^2$

$p = \sqrt{61}$

$= 7.81$ cm

(ii)



Jarak terdekat / *Shortest distance*

$= \sqrt{150^2 + 360^2}$

$= 390$ m

$= 0.39$ km

Fokus KBAT

(a) Pepenjuru tanah *PQRS*
Diagonal of land PQRS

$= \sqrt{5^2 + 10.2^2}$

$= \sqrt{129.04}$

$= 11.36$ m

Pepenjuru tanah *JKLM*
Diagonal of land JKLM

$= \sqrt{8.1^2 + 6.2^2}$

$= \sqrt{104.05}$

$= 10.2$ m

Pepenjuru tanah *PQRS* lebih panjang daripada pepenjuru tanah *JKLM*. Maka, Amni patut memilih tanah *PQRS* untuk dijadikan kebun sayur-sayurannya.
The diagonal of land PQRS is longer than the diagonal of land JKLM. Hence, Amni should choose land PQRS for his vegetable farm.

(b) Panjang pagar yang diperlukan
The length of fence required

$= 2(5) + 2(10.2) + 11.36$

$= 10 + 20.4 + 11.36$

$= 41.76$ m