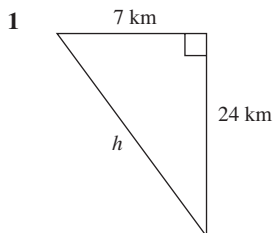


Fully-Worked Solutions

PRACTICE 13

Section A



$$\begin{aligned} h &= \sqrt{24^2 + 7^2} \\ &= \sqrt{625} \\ &= 25 \text{ km} \end{aligned}$$

Answer: C

2 $x = \sqrt{10^2 + 6^2}$
 $= \sqrt{136}$

Answer: D

3 $XU = \sqrt{17^2 - 8^2}$
 $= \sqrt{225}$
 $= 15 \text{ cm}$

$$WU = 2 \times 15 = 30 \text{ cm}$$

$$\begin{aligned} WV &= \sqrt{30^2 - 24^2} \\ &= \sqrt{324} \\ &= 18 \text{ cm} \end{aligned}$$

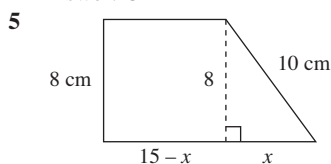
Answer: A

4 $\sqrt{15^2 + 8^2} = \sqrt{289}$
 $= 17 \text{ cm}$

$$\begin{aligned} \sqrt{25^2 - 24^2} &= \sqrt{49} \\ &= 7 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter} &= 2 \times 17 + 24 + 7 + 25 \\ &= 90 \text{ cm} \end{aligned}$$

Answer: C



$$\begin{aligned} x &= \sqrt{10^2 - 8^2} \\ &= \sqrt{36} \\ &= 6 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter} &= 15 - 6 + 15 + 8 + 10 \\ &= 42 \text{ cm} \end{aligned}$$

Answer: B

6 Length of sides of the square

$$\begin{aligned} &= \sqrt{144} \\ &= 12 \text{ cm} \\ x &= \sqrt{12^2 + 5^2} \\ &= \sqrt{169} \\ &= 13 \end{aligned}$$

Answer: A

7 $LM = \sqrt{13^2 - 12^2}$
 $= \sqrt{25}$
 $= 5 \text{ cm}$

$$\begin{aligned} KM &= \sqrt{15^2 - 12^2} \\ &= \sqrt{81} \\ &= 9 \text{ cm} \end{aligned}$$

$$\begin{aligned} KL &= KM - LM \\ &= 9 - 5 \\ &= 4 \text{ cm} \end{aligned}$$

Answer: A

8 Length of sides of the square

$$\begin{aligned} &= \sqrt{10^2 - 6^2} \\ &= \sqrt{64} \\ &= 8 \text{ cm} \end{aligned}$$

Area of the square

$$\begin{aligned} &= 8 \times 8 \\ &= 64 \text{ cm}^2 \end{aligned}$$

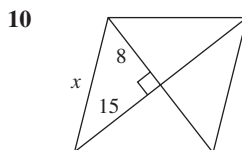
Answer: C

9 $\sqrt{20^2 - 12^2} = \sqrt{256}$
 $= 16 \text{ cm}$

Area of shaded region

$$\begin{aligned} &= \frac{1}{2} \times 16 \times 12 - \frac{1}{2} \times 15 \times 6 \\ &= 96 - 45 \\ &= 51 \text{ cm}^2 \end{aligned}$$

Answer: B



$$\begin{aligned} x &= \sqrt{15^2 + 8^2} \\ &= \sqrt{289} \\ &= 17 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter} &= 4 \times 17 \\ &= 68 \text{ cm} \end{aligned}$$

Answer: C

11 Answer: D

$$12 \quad \sqrt{12^2 + 16^2} = \sqrt{400} \\ = 20$$

Thus, TWU is a right-angled triangle.

$$\angle VWU = 360^\circ - 90^\circ - 168^\circ \\ = 102^\circ$$

$$x = 180^\circ - 102^\circ - 36^\circ \\ = 42^\circ$$

Answer: B

Section B

$$1 \quad (a) \quad \sqrt{14^2 + 48^2} = \sqrt{2500} \\ = 50$$

Right-angled triangle

$$(b) \quad \sqrt{15^2 + 20^2} = \sqrt{625} \\ = 25$$

$$24 < 25$$

Acute-angled triangle

$$(c) \quad \sqrt{15^2 + 36^2} = \sqrt{1521} \\ = 39$$

$$40 > 39$$

Obtuse-angled triangle

$$(d) \quad \sqrt{15^2 + 8^2} = \sqrt{289} \\ = 17$$

Right-angled triangle

$$2 \quad x^2 + 40^2 = 41^2 \\ x = \sqrt{41^2 - 40^2} \\ x = 9$$

3

(5, 12, 13)	8, 12, 20	(50, 40, 30)	3, 2, 1	7, 20, 21
18, 20, 27	(14, 48, 50)	12, 16, 18	(8, 10, 6)	5, 12, 15

Section C

$$1 \quad (a) \quad (i) \quad \sqrt{11^2 + 60^2} = \sqrt{3721} \\ = 61$$

Yes

$$(ii) \quad \sqrt{33^2 + 56^2} = \sqrt{4225} \\ = 65$$

No

$$(iii) \quad \sqrt{7^2 + 9^2} = \sqrt{130} \\ \text{No}$$

$$(b) \quad BC = \sqrt{16^2 + 12^2} = 20 \text{ cm}$$

$$CD = \sqrt{29^2 - 20^2} = 21 \text{ cm}$$

$$(c) \quad x^2 + x^2 = (\sqrt{72})^2$$

$$2x^2 = 72$$

$$x^2 = 36$$

$$x = 6$$

$$\therefore ST = 6 \text{ cm}$$

$$(d) \quad EF = \sqrt{37^2 - 35^2} = 12 \text{ cm}$$

$$EC = \sqrt{13^2 - 12^2} = 5 \text{ cm}$$

$$\text{Perimeter} = 37 + 13 + 5 + 40 + 5 \\ = 100 \text{ cm}$$

$$2 \quad (a) \quad PS = \sqrt{64} = 8 \text{ cm}$$

$$SV = \sqrt{289} = 17 \text{ cm}$$

$$PV = \sqrt{17^2 - 8^2} = 15 \text{ cm}$$

$$\text{Perimeter} = 3(8) + 3(17) + 15 \\ = 90 \text{ cm}$$

$$(b) \quad PS = \sqrt{12^2 + 16^2} = 20 \text{ cm}$$

$$ST = \sqrt{29^2 - 20^2} = 21 \text{ cm}$$

$$\text{Perimeter} = 3(20) + 21 + 29 \\ = 110 \text{ cm}$$

$$(c) \quad AF = \sqrt{34^2 - 16^2} = 30 \text{ cm}$$

$$GC = 41 - 24 = 17 \text{ cm}$$

$$EG = \sqrt{7^2 + 24^2} = 25 \text{ cm}$$

$$\text{Perimeter} = 11 + 34 + 25 + 17 + 23 \\ = 110 \text{ cm}$$