

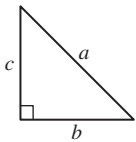
Fully-worked Solutions

Practice 13

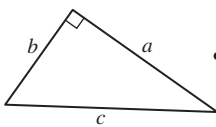
Formative Practice

1 (a) AC

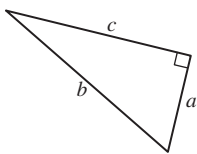
2 (a)



(b)



(c)



(b) ST

$$b^2 = a^2 + c^2$$

$$a^2 = b^2 + c^2$$

$$c^2 = a^2 + b^2$$

3 A Correct

C Correct

Answer: D

4 $x^2 = 3^2 + 10^2$

$$= 109$$

$$x = \sqrt{109}$$

$$= 10.44$$

5 $AB^2 = 15^2 + 21^2$

$$= 225 + 441$$

$$= 666$$

$$AB = \sqrt{666}$$

$$= 25.8 \text{ cm}$$

6 $16^2 = PQ^2 + 13^2$

$$256 = PQ^2 + 169$$

$$PQ^2 = 87$$

$$PQ = \sqrt{87}$$

$$= 9.33 \text{ cm}$$

7 $x^2 = 20^2 - 8^2$

$$= 400 - 64$$

$$= 336$$

$$x = \sqrt{336}$$

$$= 18.3$$

8 $QT^2 = 25^2 - 24^2$

$$= 625 - 576$$

$$= 49$$

$$QT = \sqrt{49}$$

$$= 7 \text{ cm}$$

$$RT = 20 \text{ cm} - 7 \text{ cm}$$

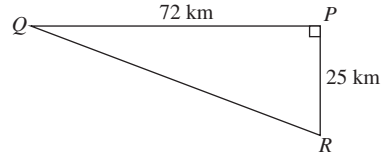
$$= 13 \text{ cm}$$

Answer: C

B Correct

D Wrong

9



$$QR^2 = 25^2 + 72^2$$

$$= 625 + 5184$$

$$= 5809$$

$$QR = \sqrt{5809}$$

$$= 76.22 \text{ km}$$

10 A Correct

B Correct

C Correct

D Wrong

Answer: D

11 (a) $AC^2 = 81$

$$AB^2 + BC^2 = 6^2 + 7^2$$

$$= 85$$

$$AC^2 \neq AB^2 + BC^2$$

ABC is not a right-angled triangle.

(b) $LN^2 = 625$

$$LM^2 + MN^2 = 15^2 + 20^2$$

$$= 625$$

$$LN^2 = LM^2 + MN^2$$

LMN is a right-angled triangle.

12 (a) $17^2 = 289$

$$8^2 + 15^2 = 64 + 225$$

$$= 289$$

$$17^2 = 8^2 + 15^2$$

\therefore Right-angled triangle ✓

(b) $7^2 = 49$

$$3^2 + 5^2 = 9 + 25$$

$$= 34$$

$$7^2 \neq 3^2 + 5^2$$

\therefore Not a right-angled triangle

13 (a) $QR^2 = 3.6^2$

$$= 12.96$$

$$PQ^2 + PR^2 = 3^2 + 1.6^2$$

$$= 9 + 2.56$$

$$= 11.56$$

$$QR^2 \neq PQ^2 + PR^2$$

\therefore Flag pole does not stand vertically with the horizontal floor.

(b) $\sqrt{PQ^2 + PR^2} = \sqrt{11.56} = 3.4$

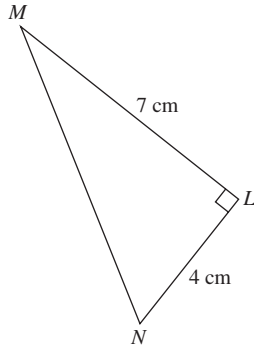
Length of rope that needs to be cut

$$= 3.6 - 3.4$$

$$= 0.2 \text{ m}$$

Summative Practice

1



$$\begin{aligned} MN^2 &= 7^2 + 4^2 \\ &= 49 + 16 \\ &= 65 \\ MN &= \sqrt{65} \\ &= 8.06 \text{ cm} \end{aligned}$$

Answer: B

2 $QR^2 = 34^2 - 16^2$
 $= 1156 - 256$
 $= 900$
 $QR = 30 \text{ cm}$
 $QT = 15 \text{ cm}$
 $QS^2 = 17^2 - 15^2$
 $= 289 - 225$
 $= 64$

$$QS = 8 \text{ cm}$$

Answer: C

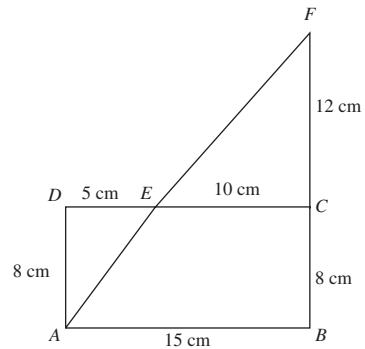
3 $PQ^2 = 10^2 - 8^2$
 $= 100 - 64$
 $= 36$
 $PQ = \sqrt{36}$
 $= 6 \text{ cm}$
 $PR = 12 \text{ cm}$
 $PS^2 = 15^2 - 12^2$
 $= 225 - 144$
 $= 81$
 $PS = \sqrt{81}$
 $= 9 \text{ cm}$
 $ST = 9 \text{ cm} - 8 \text{ cm}$
 $= 1 \text{ cm}$

Answer: A

4 $PQ^2 = 26^2 - 10^2$
 $= 676 - 100$
 $= 576$
 $PQ = \sqrt{576}$
 $= 24 \text{ cm}$
 $PQ = 3QR$
 $24 = 3QR$
 $QR = 8 \text{ cm}$
 $RT^2 = 6^2 + 8^2$
 $= 36 + 64$
 $= 100$
 $RT = \sqrt{100}$
 $= 10 \text{ cm}$

Answer: B

5 (a)



$$\begin{aligned} AE^2 &= 8^2 + 5^2 \\ &= 64 + 25 \\ &= 89 \end{aligned}$$

$$\begin{aligned} AE &= 9.43 \text{ cm} \\ EF^2 &= 10^2 + 12^2 \\ &= 100 + 144 \\ &= 244 \end{aligned}$$

$$EF = 15.62 \text{ cm}$$

(b) $AF^2 = 15^2 + 20^2$
 $= 225 + 400$
 $= 625$

$$AF = 25 \text{ cm}$$

$$AE + EF = 9.43 \text{ cm} + 15.62 \text{ cm} = 25.05 \text{ cm}$$

$$AE + EF \neq AF$$

\therefore A, E and F do not lie on a straight line.