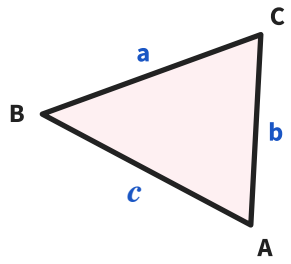
The Sine Rule: Finding a Side

ANSWERS

1

Label the sides a, b and c.

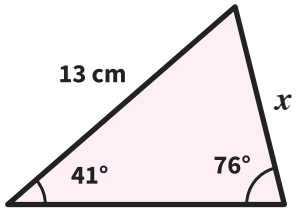


a is BC b is AC

c is AB

2 Opposite sides and angles pair up.

Find x to 1 decimal place.



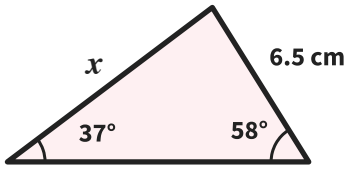
$$\frac{x}{\sin 41^\circ} = \frac{13}{\sin 76^\circ}$$

$$x = \frac{13 \times \sin 41^\circ}{\sin 76^\circ}$$

$x =$ 8.8 cm

3

Find x to 1 decimal place.



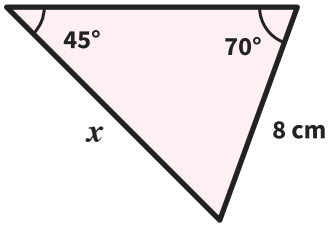
$$\frac{x}{\sin 58^\circ} = \frac{6.5}{\sin 37^\circ}$$

$$x = \frac{6.5 \times \sin 58^\circ}{\sin 37^\circ}$$

$x =$ 9.2 cm

4

Find x to 1 decimal place.



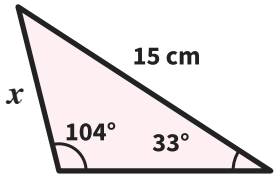
$$\frac{x}{\sin 70^\circ} = \frac{8}{\sin 45^\circ}$$

$$x = \frac{8 \times \sin 70^\circ}{\sin 45^\circ}$$

$x =$ 10.6 cm

5

Find x to 1 decimal place.



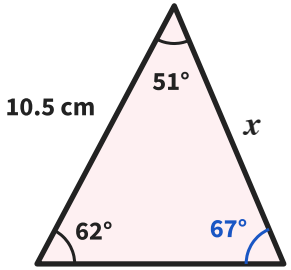
$$\frac{x}{\sin 33^\circ} = \frac{15}{\sin 104^\circ}$$

$$x = \frac{15 \times \sin 33^\circ}{\sin 104^\circ}$$

$x =$ 8.4 cm

6 Notice the change!

Find x to 1 decimal place.



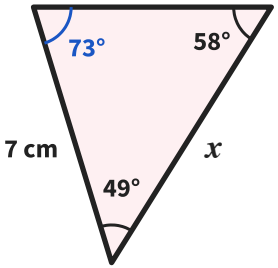
$$\frac{x}{\sin 62^\circ} = \frac{10.5}{\sin 67^\circ}$$

$$x = \frac{10.5 \times \sin 62^\circ}{\sin 67^\circ}$$

$x =$ 10.1 cm

7

Find x to 1 decimal place.



$$\frac{x}{\sin 73^\circ} = \frac{7}{\sin 58^\circ}$$

$$x = \frac{7 \times \sin 73^\circ}{\sin 58^\circ}$$

$x =$ 7.9 cm

8

In triangle PQR, angle P = 47°, angle Q = 81° and QR = 12 cm. Find PR to 1 decimal place.

$$\frac{PR}{\sin 81^\circ} = \frac{12}{\sin 47^\circ}$$

$$PR = \frac{12 \times \sin 81^\circ}{\sin 47^\circ}$$

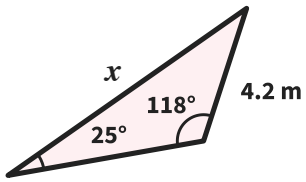
PR = 16.2 cm

The Sine Rule: Finding a Side *further practice*

ANSWERS

9

Find x to 1 decimal place.



$\frac{x}{\sin 118°} = \frac{4.2}{\sin 25°}$

$x = \frac{4.2 \times \sin 118°}{\sin 25°}$

$x =$ 8.8 m

10

In triangle ABC, angle A = 39°, angle C = 102° and AB = 20 cm. Find BC to 1 decimal place.

BC is opposite A, AB is opposite C

$BC = \frac{20 \times \sin 39°}{\sin 102°}$

BC = 12.9 cm

11

In triangle XYZ, angle X = 54°, angle Y = 71° and XY = 9 cm. Find YZ to 1 decimal place.

angle Z = 180 − 54 − 71 = 55°

$YZ = \frac{9 \times \sin 54°}{\sin 55°}$

YZ = 8.9 cm

12

A park is the triangle ABC. The fence AB is 85 m long. Angle CAB = 57° and angle ABC = 44°. A straight path runs from B to C. How long is the path?
Give your answer to 1 decimal place.

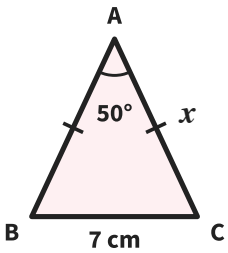
angle ACB = 180 − 57 − 44 = 79°

$BC = \frac{85 \times \sin 57°}{\sin 79°}$

Answer 72.6 m

13

Triangle ABC is isosceles with AB = AC.
Find x to 1 decimal place.



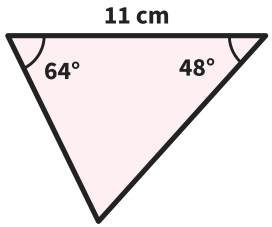
angle B = (180 − 50) ÷ 2 = 65°

$x = \frac{7 \times \sin 65°}{\sin 50°}$

$x =$ 8.3 cm

14

Find the perimeter of the triangle, to 1 decimal place.



third angle = 68°

8.82 + 10.66 + 11

Perimeter 30.5 cm

15

Amira and Kofi stand 50 m apart on a straight riverbank. Each looks at a post on the far bank. The line from Amira to the post makes 64° with the bank, and the line from Kofi makes 47°.
How wide is the river? Give your answer to 1 decimal place.

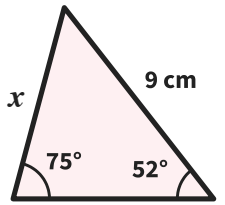
Kofi to the post = $\frac{50 \times \sin 64°}{\sin 69°}$

width = 48.14 × sin 47°

Width 35.2 m

16

Ella writes $\frac{x}{\sin 75°} = \frac{9}{\sin 52°}$ and gets 11.0 cm. Explain her mistake.
Then find x to 1 decimal place.



x is opposite 52°, not 75°

$x = \frac{9 \times \sin 52°}{\sin 75°}$

$x =$ 7.3 cm