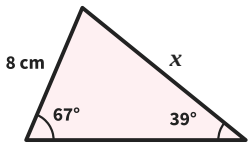
Sine Rule: Finding a Side

ANSWERS

1

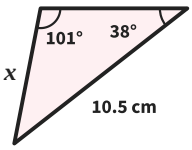
Write the sine rule with the numbers in.



$\frac{x}{\sin 67°} = \frac{8}{\sin 39°}$

2

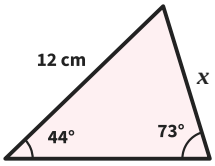
Write the sine rule with the numbers in.



$\frac{x}{\sin 38°} = \frac{10.5}{\sin 101°}$

3

Find x to 1 decimal place.



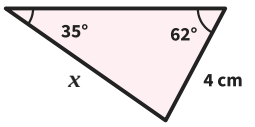
$\frac{x}{\sin 44°} = \frac{12}{\sin 73°}$

$x = \frac{12 \times \sin 44°}{\sin 73°}$

$x =$ 8.7 cm

4

Find x to 1 decimal place.



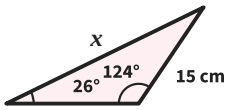
$\frac{x}{\sin 62°} = \frac{4}{\sin 35°}$

$x = \frac{4 \times \sin 62°}{\sin 35°}$

$x =$ 6.2 cm

5

Find x to 1 decimal place.



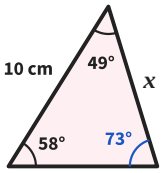
$\frac{x}{\sin 124°} = \frac{15}{\sin 26°}$

$x = \frac{15 \times \sin 124°}{\sin 26°}$

$x =$ 28.4 cm

6 *Notice the change!*

Find x to 1 decimal place.



180 − 58 − 49 = 73°

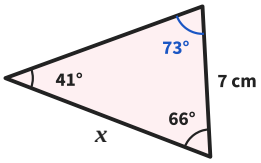
$\frac{x}{\sin 58°} = \frac{10}{\sin 73°}$

$x = \frac{10 \times \sin 58°}{\sin 73°}$

$x =$ 8.9 cm

7

Find x to 1 decimal place.



180 − 41 − 66 = 73°

$\frac{x}{\sin 73°} = \frac{7}{\sin 41°}$

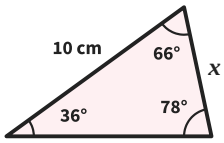
$x = \frac{7 \times \sin 73°}{\sin 41°}$

$x =$ 10.2 cm

8

Ben writes $\frac{x}{\sin 66°} = \frac{10}{\sin 78°}$.

Explain his mistake. Then find x to 1 decimal place.



x is opposite 36°, not 66°

$x = \frac{10 \times \sin 36°}{\sin 78°}$

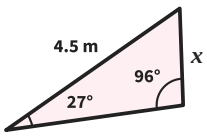
$x =$ 6.0 cm

Sine Rule: Finding a Side *further practice*

ANSWERS

9

Find x to 1 decimal place.



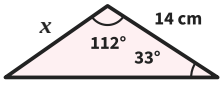
$\frac{x}{\sin 27°} = \frac{4.5}{\sin 96°}$

$x = \frac{4.5 \times \sin 27°}{\sin 96°}$

$x =$ 2.1 m

10

Find x to 1 decimal place.



180 − 33 − 112 = 35°

$x = \frac{14 \times \sin 33°}{\sin 35°}$

$x =$ 13.3 cm

11

In triangle PQR, angle P = 52°, angle Q = 74° and QR = 11 cm. Find PR to 1 decimal place.

PR is opposite Q, QR is opposite P

$PR = \frac{11 \times \sin 74°}{\sin 52°}$

PR = 13.4 cm

12

In triangle DEF, angle D = 35°, angle E = 103° and DF = 14 cm. Find DE to 1 decimal place.

angle F = 180 − 35 − 103 = 42°

$DE = \frac{14 \times \sin 42°}{\sin 103°}$

DE = 9.6 cm

13

The door of a tent is a triangle.
Its base is 1.8 m wide. The angles at the two ends of the base are 62° and 70°.
Find the length of the longer sloping edge, to 1 decimal place.

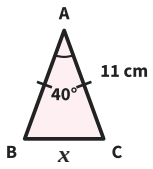
top angle = 48°

$\frac{1.8 \times \sin 70°}{\sin 48°}$

Answer 2.3 m

14

Triangle ABC is isosceles with AB = AC = 11 cm and angle A = 40°.
Find BC to 1 decimal place.



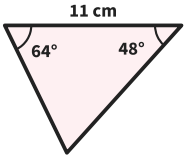
angle B = (180 − 40) ÷ 2 = 70°

$BC = \frac{11 \times \sin 40°}{\sin 70°}$

BC = 7.5 cm

15

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



third angle = 68°

8.82 + 10.66 + 11

Perimeter 30.5 cm

16

In triangle ABC, angle A = 30° and angle B = 90°. Mia says BC is always exactly half of AC. Is she right?
Show how you know.

$\frac{BC}{\sin 30°} = \frac{AC}{\sin 90°}$

BC = AC × 0.5 ÷ 1

Answer Yes