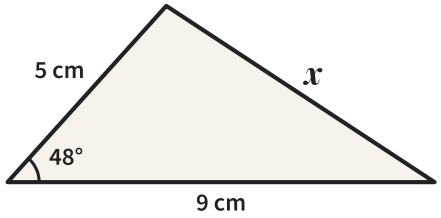
The Cosine Rule

1

Find x to 1 decimal place.



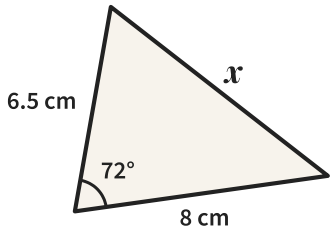
$x^2 = \square^2 + \square^2 - 2 \times \square \times \square \times \cos \square°$

$x^2 = 5^2 + 9^2$

$x =$ _____

2

Find x to 1 decimal place.

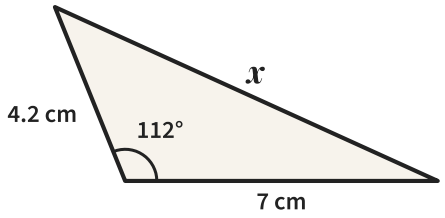


$x^2 = \square^2 + \square^2 - 2 \times \square \times \square \times \cos \square°$

$x =$ _____

3

Find x to 1 decimal place.

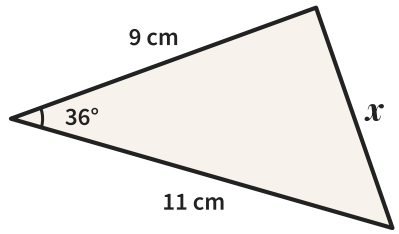


$x^2 = \square^2 + \square^2 - 2 \times \square \times \square \times \cos \square°$

$x =$ _____

4

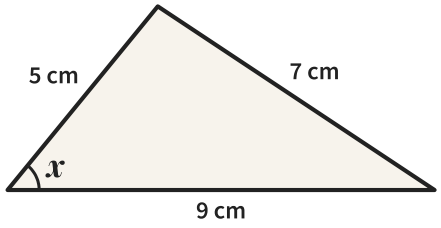
Find x to 1 decimal place.



$x =$ _____

5

Find the angle x to 1 decimal place.

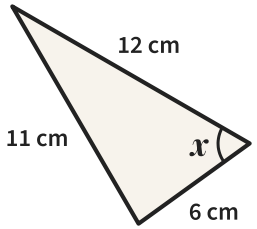


$$\cos x = \frac{\square^2 + \square^2 - \square^2}{2 \times \square \times \square}$$

$x =$ _____

6

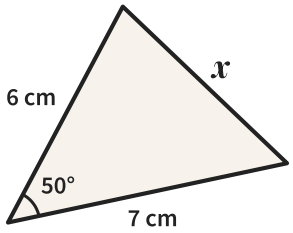
Find the angle x to 1 decimal place.



$x =$ _____

7

Ella works out $6^2 + 7^2 - 2 \times 6 \times 7 = 1$ first, then multiplies by cos 50° and gets $x = 0.8$ cm. Explain her mistake. Find x to 1 decimal place.



$x =$ _____

8

A pair of compasses has two legs, each 11 cm long. They are opened so the angle between the legs is 38°. How far apart are the point and the pencil tip? Give your answer to 1 decimal place.

Answer _____

The Cosine Rule *further practice*

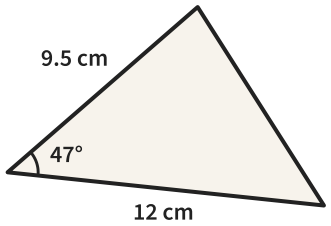
9

A triangle has sides of 8 cm, 11 cm and 14 cm. Find its largest angle to 1 decimal place.

Answer _____

10

Find the perimeter of the triangle to 1 decimal place.



Perimeter _____

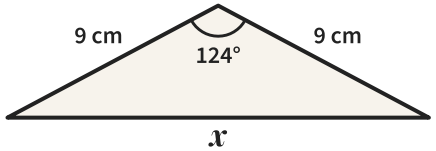
11

A triangle has sides of 5 cm and 7 cm. The angle opposite the 7 cm side is 80°. Kai says, "Use the cosine rule to find the third side." Explain why the sine rule is the one to start with.

Answer _____

12

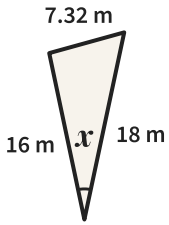
The triangle is isosceles. Find the base x to 1 decimal place.



x = _____

13

A footballer stands 16 m from one goalpost and 18 m from the other. The goal is 7.32 m wide. Find the angle x the player can shoot into, to 1 decimal place.



x = _____

14

A triangle has sides of 7 cm and 9 cm with 70° between them. Find the third side, then the angle opposite the 7 cm side. Give both to 1 decimal place.

Answer _____

15

A triangle has sides of 5 cm, 6 cm and 9 cm. Is its largest angle obtuse? Show how you know.

Answer _____

16

Show that when angle A is 90°, the cosine rule becomes Pythagoras' theorem, $a^2 = b^2 + c^2$.

So _____