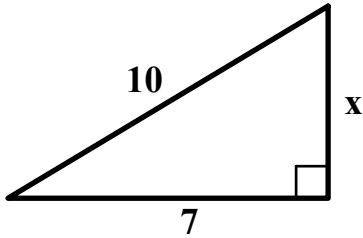# General Algebra II   Worksheet #1   Unit 13   Selected Solutions

Find the value of x in each of the following. You must show the equation you used to find x. The drawings are not to scale. Round your solutions to the nearest hundredth.

1. x ≈ __7.14__

Triangle with legs 10 (hypotenuse), 7 (base), and x (vertical side), with a right angle at bottom right.

Use the Pythagorean Theorem.

$$x^2 + 49 = 100$$

$$x^2 = 51$$

$$x = \pm \sqrt{51}$$

x ≈ 7.14 or x≈ ~~-7.14~~

4. x ≈ __4.10__

Triangle with hypotenuse 12, angle 20° at bottom left, side x at right, right angle at bottom right.
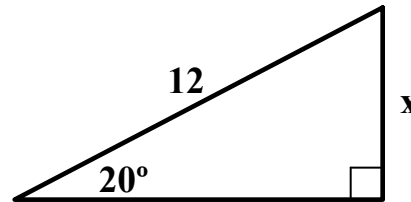
Use the sine ratio.

$$\sin 20^\circ = \frac{x}{12}$$

$$x = 12 \sin 20^\circ$$

x ≈ 4.10

8. x ≈ __22.04__

Triangle with side x (hypotenuse), angle 25° at bottom left, base 20, right angle at bottom right.
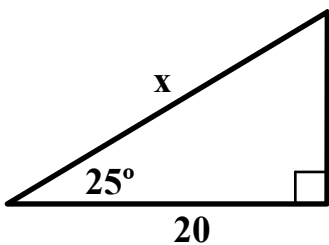
Use the cosine ratio.

$$\cos 25^\circ = \frac{20}{x}$$

$$x = \frac{20}{\cos 25^\circ}$$

x ≈ 22.07

11. x ≈ __29.05°__

Triangle with side 10 (left vertical), right angle at bottom left, base 18, angle x° at bottom right.
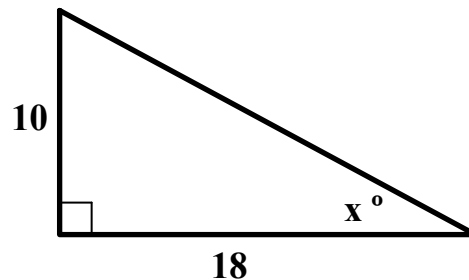
Use the tangent ratio.

$$\tan x^\circ = \frac{10}{18}$$

$$x = \tan^{-1}\left(\frac{10}{18}\right)$$

x ≈ 29.05°