Fill in the following trig ratios according to the triangle.

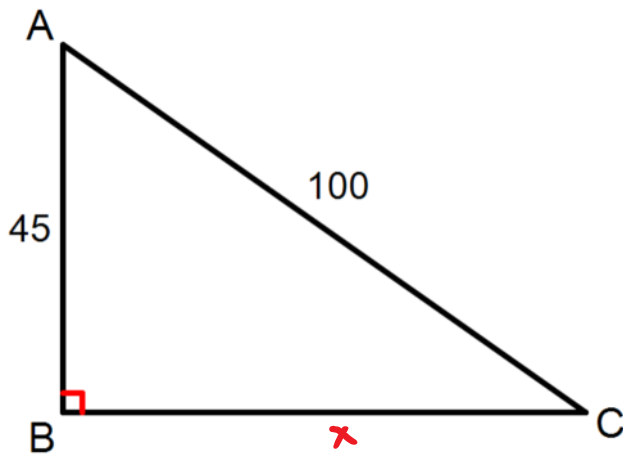A triangle with vertices A (top), B (bottom left, right angle), and C (bottom right). Side AB = 6, side BC = 8, side AC (hypotenuse) = 10.
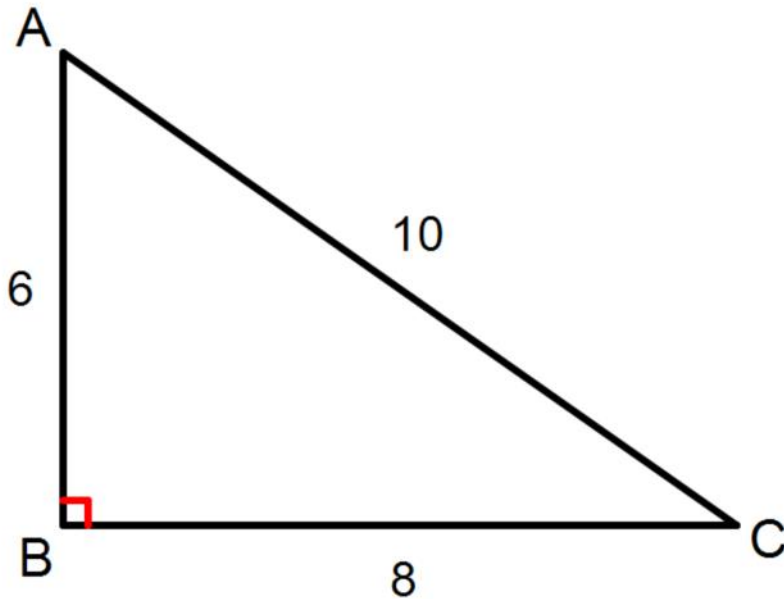
$$\sin(A) = \frac{4}{5}$$

$$\cos(A) = \frac{3}{5}$$

$$\tan(A) = \frac{4}{3}$$

Find the value of the missing side length.

A triangle with vertices A (top), B (bottom left, right angle), and C (bottom right). Side AB = 45, side AC (hypotenuse) = 100, side BC = x.

$$100^2 - 45^2 = x^2$$

$$10000 - 2025 = x^2$$

$$7975 = x^2$$

$$\sqrt{7975} = x$$

$$25 \quad 319$$

$$\boxed{5\sqrt{319} = x}$$

Is a triangle with the following side lengths a right triangle? 39, 52, 66

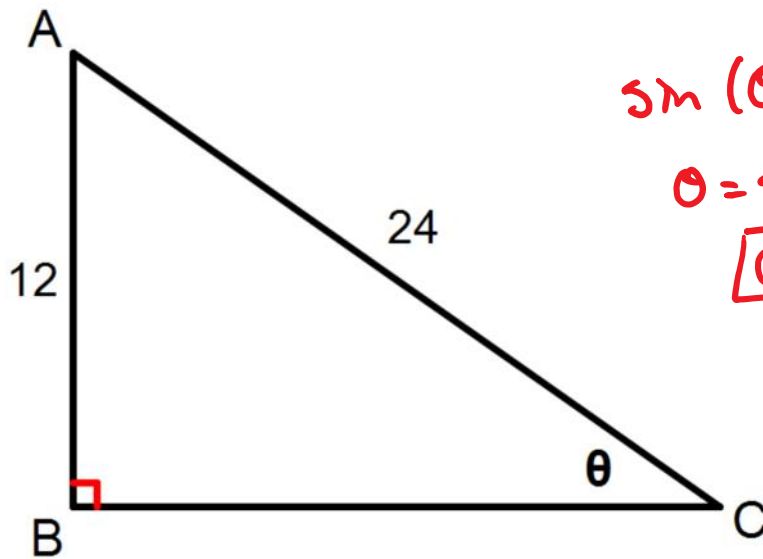$$39^2 + 52^2 \qquad 66^2$$

$$1521 + 2704$$

$3^? + 7^2$
$1521 + 2704$
$4225 \qquad 4356$

NO, not right

Find the angle measure.

A

12

24

B

θ

C

$\sin(\theta) = \frac{12}{24}$

$\theta = \sin^{-1}\left(\frac{12}{24}\right)$

$\theta = 30°$

If you want to measure the height of a tree and you stand 40 feet from the tree and measure the angle of inclination to be 37 degrees, how tall is the tree?

37°

37°

x

$\tan(37°) = \frac{x}{40}$

$x = 40 \cdot \tan(37°)$

(diagram: 37° angle, base 40')   *(tower diagram)*   *(37° angle with 40, x)* $x = 40 \cdot \tan(37°)$

$x \approx 30.1 \text{ ft.}$
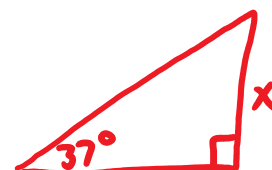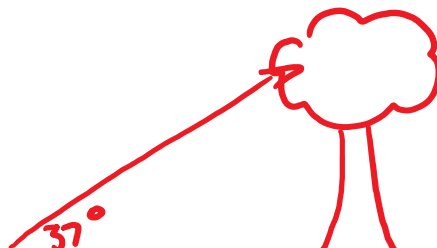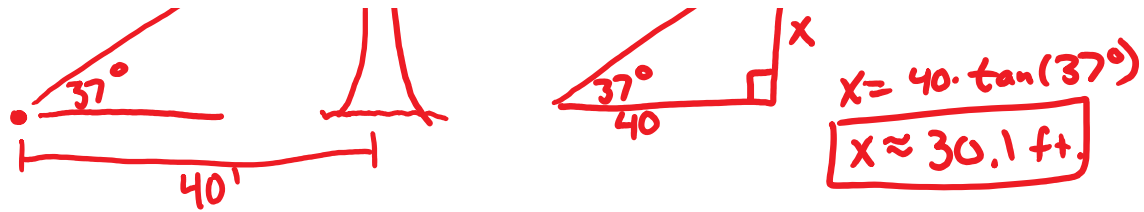
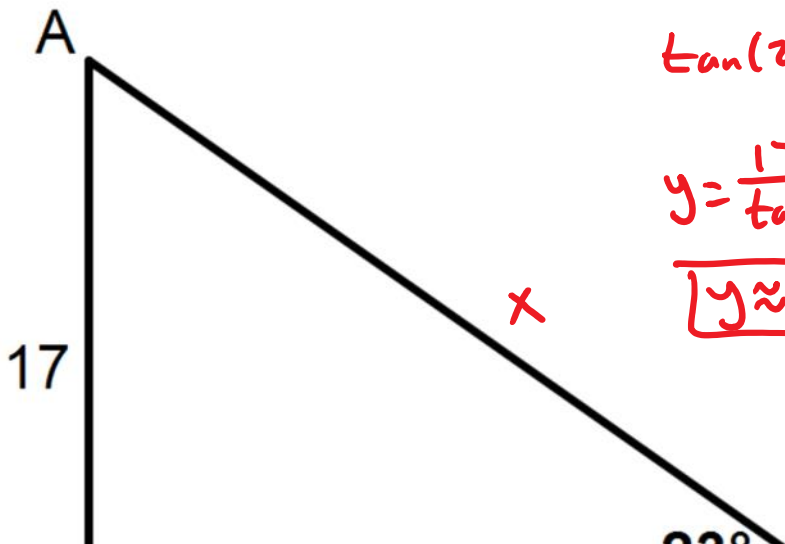
Find the angle measure.

$$\tan(R) = -\frac{\sqrt{2}}{2}$$

$$R = \tan^{-1}\left(-\frac{\sqrt{2}}{2}\right)$$

$$R \approx -35.264°$$

Solve for the side lengths of the triangle.
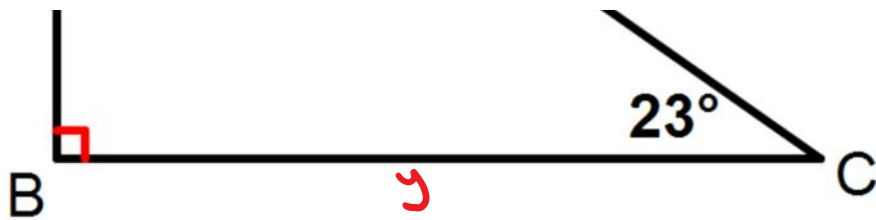
A

17

x

$$\tan(23°) = \frac{17}{y} \qquad \sin(23°) = \frac{17}{x}$$

$$y = \frac{17}{\tan(23°)} \qquad x = \frac{17}{\sin(23°)}$$

$$y \approx 40.05 \qquad x \approx 43.5$$

23°

B y C

Solve for x and y in the following special triangles.

A

$x = y$

$26 = x\sqrt{2}$

$\boxed{x = 13\sqrt{2} = y}$

26

x

45°

B y C

D

$20 = x\sqrt{3}$

$\boxed{\dfrac{20\sqrt{3}}{3} = x}$

$y = 2x$

$\boxed{y = \dfrac{40\sqrt{3}}{3}}$

y

x

30°

E   20   F