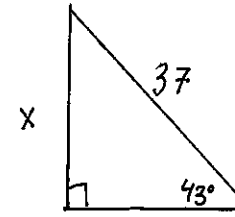
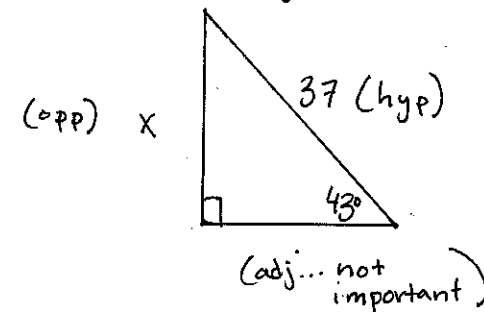


How to solve for missing sides using trig

ex. 1) Solve for x:



Step 1: Label opposite/adjacent/hypotenuse (one will not be important because no length or variable is associated with it)



Step 2: Decide which trig function goes with what you are given

SOH CAH TOA

This example uses sine because I am using opposite (x) and hypotenuse (37)

Step 3: Write trig ratio, using the angle given (43°) as your θ

$$\sin(43) = \frac{x}{37}$$

← opposite
← hypotenuse

Step 4: Solve for x using calculator

$$\sin(43) = \frac{x}{37}$$

← x is in numerator, so multiply both sides by 37

$$37 \cdot \sin(43) = \frac{x}{37} \cdot 37$$

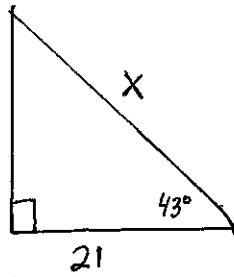
$$\boxed{37 \cdot \sin(43)} = x$$

Type exactly in calculator (be sure you are in degree mode!)

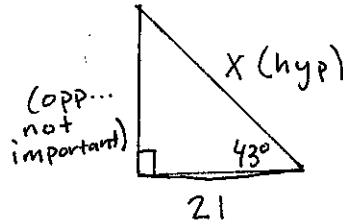
$$x = 25.24 \text{ (rounded to the hundredths)}$$

Rule of Thumb: When x is in numerator, multiply normal number \cdot trig function

x. 2) Solve for x



Step 1: Label opposite/adjacent/hypotenuse (one will not be important)



Step 2: Decide which trig function ^(adj) to use

SOH CAH TOA

This example uses cosine because I am using adjacent (21) and hypotenuse (x)

Step 3: Write trig ratio, using angle given (43°) as your θ

$$\cos(43^\circ) = \frac{21}{x}$$

← adjacent
← hypotenuse

Step 4: Solve for x using calculator

$$\cos(43) = \frac{21}{x}$$

x is in denominator
multiply both sides by x

$$x \cdot \cos(43) = \frac{21 \cdot x}{x}$$

divide both sides by $\cos(43)$

$$\frac{x \cdot \cos(43)}{\cos(43)} = \frac{21}{\cos(43)}$$

$$\boxed{X = \frac{21}{\cos(43)}} \text{ plug in calculator exactly as it appears}$$

$$X = 28.71 \text{ (rounded to the hundredths)}$$

Rule of thumb: when variable is in denominator, divide $\frac{\text{normal number}}{\text{trig function}}$