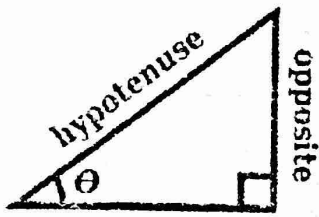
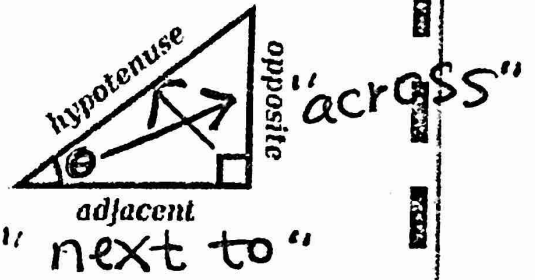


θ = "theta" = angle of reference
 which is the angle you use to label your triangle

Right Triangle Trigonometry



$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

sine

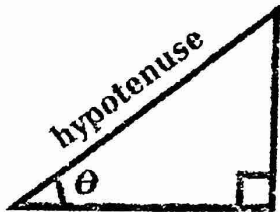
S

O

H

SOH

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$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

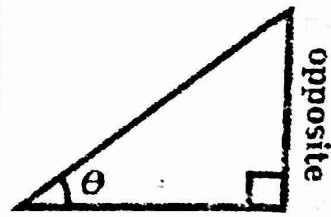
cosine

C

A

H

CAH



$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$

tangent

T

O

A

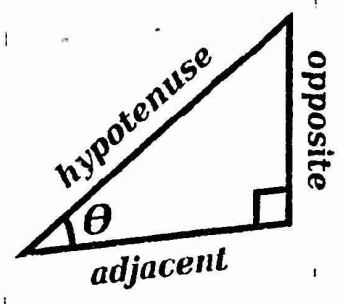
TOA

$\frac{S}{O}$
H

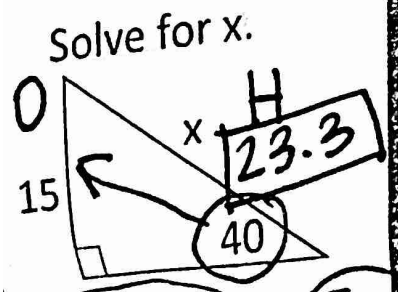
$\frac{C}{A}$
H

$\frac{T}{O}$
A

Using SOH CAH TOA

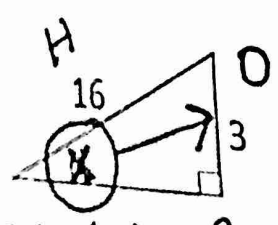


Use Sine, Cosine, and Tangent to solve for missing sides or angles in right triangles.



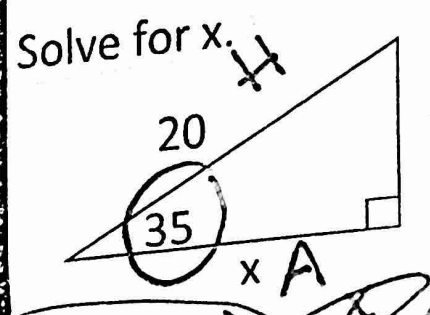
~~$\sin(40) = \frac{15}{x}$~~
 ~~$x = \frac{15}{\sin(40)}$~~
 $x = 23.3$

~~$x \cdot \sin(40) = 15$~~
 ~~$\sin(40)$~~
~~Solve for theta.~~



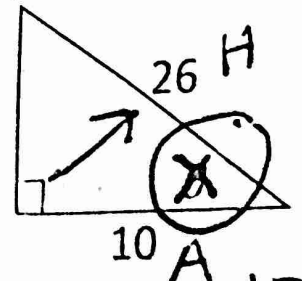
$\sin(x) = \frac{3}{16}$

$\sin^{-1}\left(\frac{3}{16}\right) = x$
 $x = 10.8^\circ$
 SOH



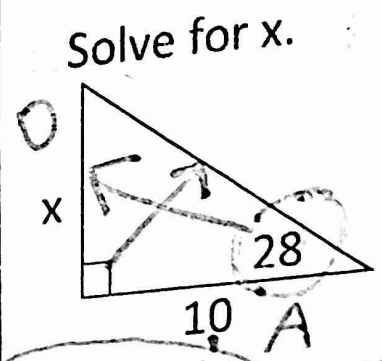
~~$\cos(35) = \frac{x}{20}$~~
 ~~$x = 20 \cdot \cos(35)$~~
 $x = 16.4$

~~$x = 20 \cdot \cos(35)$~~
~~Solve for theta.~~



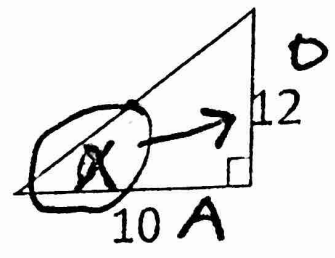
$\cos(x) = \frac{10}{26}$

$\cos^{-1}\left(\frac{10}{26}\right) = x$
 $x = 67.38^\circ$
 CAH



~~$\tan(28) = \frac{x}{10}$~~
 ~~$x = 10 \cdot \tan(28)$~~
 $x = 5.3$

~~$x = 10 \cdot \tan(28)$~~
~~Solve for theta.~~



$\tan(x) = \frac{12}{10}$

$\tan^{-1}\left(\frac{12}{10}\right) = x$
 $x = 50.2^\circ$
 TOA