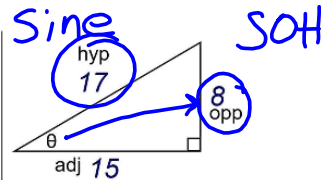


Reciprocal
 $\sin \theta = \frac{1}{\csc \theta}$

$\sin \theta = \tan \theta \cos \theta$

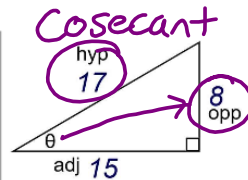
$\sin^2 \theta = 1 - \cos^2 \theta$

$\sin \theta = \cos(90^\circ - \theta)$



$\sin \theta = \frac{\text{opposite leg}}{\text{hypotenuse}} = \frac{O}{H}$

$\sin \theta = \frac{8}{17} = 0.47$



$\csc \theta = \frac{\text{hypotenuse}}{\text{opposite leg}} = \frac{H}{O}$

$\csc \theta = \frac{17}{8} = \frac{1}{0.47} = 2.13$

Reciprocal
 $\csc \theta = \frac{1}{\sin \theta}$

$\csc \theta = \cot \theta \sec \theta$

$\csc^2 \theta = 1 + \cot^2 \theta$

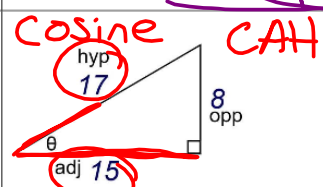
$\csc \theta = \sec(90^\circ - \theta)$

Reciprocal
 $\cos \theta = \frac{1}{\sec \theta}$

$\cos \theta = \frac{\sin \theta}{\tan \theta}$

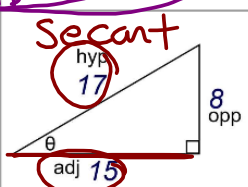
$\cos^2 \theta = 1 - \sin^2 \theta$

$\cos \theta = \sin(90^\circ - \theta)$



$\cos \theta = \frac{\text{adjacent leg}}{\text{hypotenuse}} = \frac{A}{H}$

$\cos \theta = \frac{15}{17} = 0.88$



$\sec \theta = \frac{\text{hypotenuse}}{\text{adjacent leg}} = \frac{H}{A}$

$\sec \theta = \frac{17}{15} = \frac{1}{0.88} = 1.13$

Reciprocal
 $\sec \theta = \frac{1}{\cos \theta}$

$\sec \theta = \frac{\tan \theta}{\sin \theta}$

$\sec^2 \theta = 1 + \tan^2 \theta$

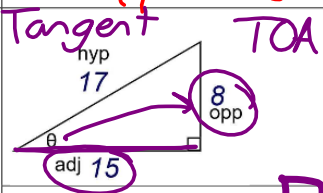
$\sec \theta = \csc(90^\circ - \theta)$

Reciprocal
 $\tan \theta = \frac{1}{\cot \theta}$

$\tan \theta = \frac{\sin \theta}{\cos \theta}$

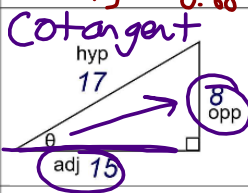
$\tan^2 \theta = \sec^2 \theta - 1$

$\tan \theta = \cot(90^\circ - \theta)$



$\tan \theta = \frac{\text{opposite leg}}{\text{adjacent leg}} = \frac{O}{A}$

$\tan \theta = \frac{8}{15} = 0.53$



$\cot \theta = \frac{\text{adjacent leg}}{\text{opposite leg}} = \frac{A}{O}$

$\cot \theta = \frac{15}{8} = \frac{1}{0.53} = 1.88$

Reciprocal
 $\cot \theta = \frac{1}{\tan \theta}$

$\cot \theta = \frac{\cos \theta}{\sin \theta}$

$\cot^2 \theta = \csc^2 \theta - 1$

$\cot \theta = \tan(90^\circ - \theta)$

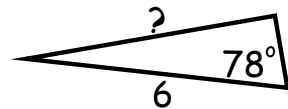
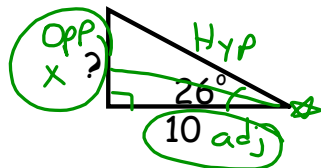
Right Triangles and Right Triangle Trigonometry

Mrs. Theo
3/7/23
Notes

Find the missing side

Trig Functions can only be used to solve problems that deal with: 2 sides and 1 angle

1. Label your Triangle O,H,A
2. Pick your Trig Function that puts x on top

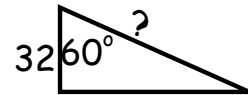
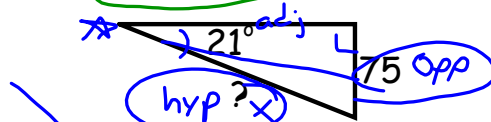


type into calc →

$$10 \cdot \tan(26^\circ) = \frac{x}{10} \cdot 10$$

$$10 \cdot \tan(26^\circ) = x$$

$$4.88 = x$$



~~$\sin(21^\circ) = \frac{75}{x}$~~

We don't want X on bottom

$$75 \cdot \csc(21^\circ) = x$$

$$75 \cdot \left(\frac{1}{\sin(21^\circ)} \right) = x$$

$$209.28 = x$$

use/sub in reciprocal Identity

Find the missing Angle

1. Label your Triangle O,H,A
2. Pick the trig ratio that you have
3. Take the inverse on both sides

only use cos, sin, tan
trig⁻¹ or arc trig
(Not reciprocal)

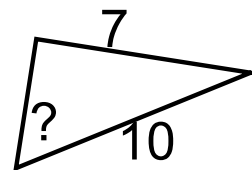
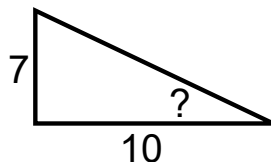
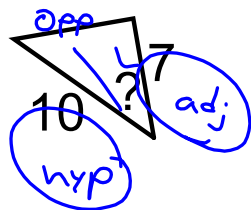
Degrees

θ theta

β Beta

α alpha

γ gamma



$$\cos \theta = \frac{7}{10}$$

$$\cos^{-1}(\cos \theta) = \cos^{-1}\left(\frac{7}{10}\right)$$

← type into calc

$$\theta = 45.57^\circ$$

Right Triangles and Right Triangle Trigonometry

Mrs. Theo

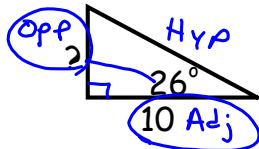
/ /

Notes

Trig Functions can only be used to solve problems that deal with: 2 sides and 1 angle

Find the missing side

1. Label your Triangle O,H,A
2. Pick your Trig Function that puts x on top

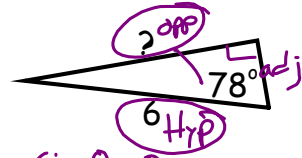


$$\tan \theta = \frac{O}{A}$$

$$10 \cdot \tan 26^\circ = \frac{x}{10}$$

$$4.88 = x$$

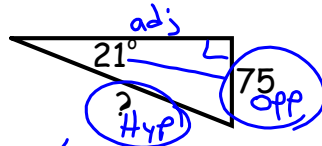
type into calculator



$$\sin \theta = \frac{O}{H}$$

$$6 \cdot (\sin 78^\circ) = \frac{x}{6}$$

$$5.87 = x$$



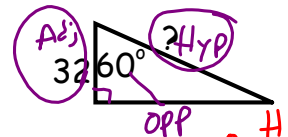
$$\sin 21^\circ = \frac{75}{x}$$

$$x = \frac{75}{\sin 21^\circ}$$

use Reciprocal

$$75(1/\sin 21^\circ) = x$$

$$209 = x$$



$$\cos 60^\circ = \frac{32}{x}$$

$$x = \frac{32}{\cos 60^\circ}$$

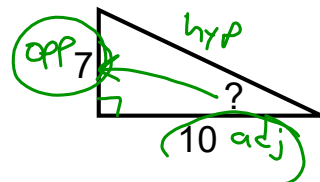
$$32 \cdot \sec 60^\circ = x$$

$$32(1/\cos 60^\circ) = x$$

$$64 = x$$

Find the missing Angle

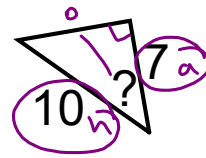
1. Label your Triangle O,H,A
2. Pick the trig ratio that you have (Sin, Cos, Tan)
3. Take the inverse on both sides



$$\tan x = \frac{7}{10}$$

$$\tan^{-1}(\tan x) = \tan^{-1}\left(\frac{7}{10}\right)$$

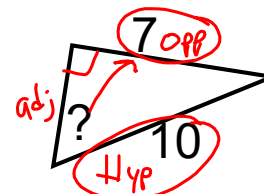
$$x = 34.9^\circ$$



$$\cos \theta = \frac{7}{10}$$

$$\theta = \cos^{-1}\left(\frac{7}{10}\right)$$

$$\theta = 45.57^\circ$$



$$\sin \theta = \frac{7}{10}$$

$$\sin^{-1}(\sin \theta) = \sin^{-1}\left(\frac{7}{10}\right)$$

$$\theta = 44.43^\circ$$

Angles
 θ
 α
 β
 γ

type into calculator