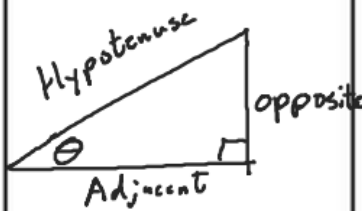


What you'll Learn About

- Right Triangle Trigonometry/ Two Famous Triangles
- Evaluating Trig Functions with a calculator/Applications of right triangle trig



$\theta$  - Theta

The six trigonometric functions

Sine

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

$$\text{Cosecant} = \frac{1}{\sin \theta}$$

$$\csc \theta = \frac{1}{\sin \theta} = \frac{\text{Hypotenuse}}{\text{opposite}}$$

Cosine

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

Secant

$$\sec \theta = \frac{1}{\cos \theta} = \frac{\text{Hypotenuse}}{\text{Adjacent}}$$

Tangent

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

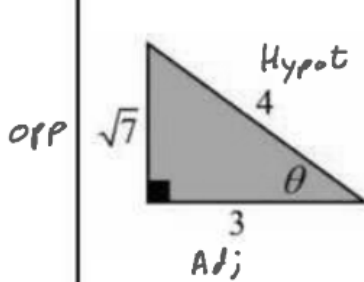
Cotangent

$$\cot \theta = \frac{1}{\tan \theta} = \frac{\text{Adjacent}}{\text{opposite}}$$

SOH - CAH - TOA  
 i o y o d y a n p p d  
 n p p s j p n p o s j a c i r t  
 p p o s j a c i r t

# SOH-CAH-TOA

Find the values of all six trigonometric functions.



$$\sin \theta = \frac{\sqrt{7}}{4}$$

$$\csc \theta = \frac{4}{\sqrt{7}}$$

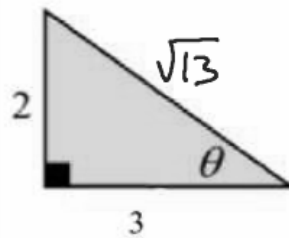
$$\cos \theta = \frac{3}{4}$$

$$\sec \theta = \frac{4}{3}$$

$$\tan \theta = \frac{\sqrt{7}}{3}$$

$$\cot \theta = \frac{3}{\sqrt{7}}$$

$$a^2 + b^2 = c^2$$



$$\sin \theta = \frac{2}{\sqrt{13}}$$

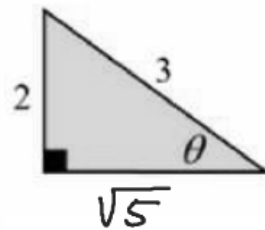
$$\csc \theta = \frac{\sqrt{13}}{2}$$

$$\cos \theta = \frac{3}{\sqrt{13}}$$

$$\sec \theta = \frac{\sqrt{13}}{3}$$

$$\tan \theta = \frac{2}{3}$$

$$\cot \theta = \frac{3}{2}$$



$$\sin \theta = \frac{2}{3}$$

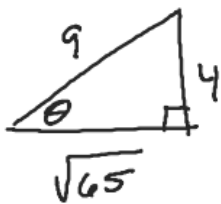
$$\csc \theta = \frac{3}{2}$$

$$\cos \theta = \frac{\sqrt{5}}{3}$$

$$\sec \theta = \frac{3}{\sqrt{5}}$$

$$\tan \theta = \frac{2}{\sqrt{5}}$$

$$\cot \theta = \frac{\sqrt{5}}{2}$$



Assume that  $\theta$  is an acute angle in a right triangle satisfying the given conditions. Evaluate the remaining trigonometric functions.

A)  $\sin \theta = \frac{4}{9}$

$\csc \theta = \frac{9}{4}$

B)  $\cos \theta = \frac{2}{9}$

$\cos \theta = \frac{\sqrt{65}}{9} \sec \theta = \frac{9}{\sqrt{65}}$

$\tan \theta = \frac{4}{\sqrt{65}} \cot \theta = \frac{\sqrt{65}}{4}$

C)  $\tan \theta = \frac{4}{9}$

D)  $\cot \theta = \frac{2}{9}$

E)  $\csc \theta = \frac{10}{7}$

F)  $\sec \theta = \frac{4}{3}$