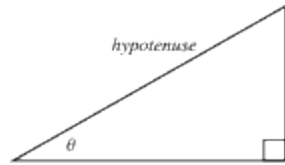


# Trigonometric Identities



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

SOH

## SOH

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

$$\theta = \sin^{-1}\left(\frac{\text{opposite}}{\text{hypotenuse}}\right)$$

### Reciprocal identities

$$\csc(\theta) = \frac{1}{\sin(\theta)}$$

### Pythagorean Identities

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

### Quotient Identities

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

### Even-Odd Identities

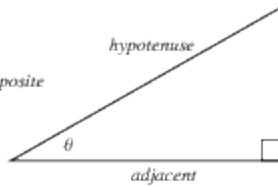
$$\sin(-\theta) = -\sin(\theta)$$

$$\csc(-\theta) = -\csc(\theta)$$

### Sum-Difference Formulas

$$\sin(\theta \pm \alpha) = \sin(\theta) \cos(\alpha) \pm \cos(\theta) \sin(\alpha)$$

$$\tan(\theta \pm \alpha) = \frac{\tan(\theta) \pm \tan(\alpha)}{1 \mp \tan(\theta) \tan(\alpha)}$$



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

CAH

## CAH

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

$$\theta = \cos^{-1}\left(\frac{\text{adjacent}}{\text{hypotenuse}}\right)$$

$$\sec(\theta) = \frac{1}{\cos(\theta)}$$

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

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

$$\cos(-\theta) = \cos(\theta)$$

$$\sec(-\theta) = \sec(\theta)$$



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

TOA

## TOA

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

$$\theta = \tan^{-1}\left(\frac{\text{opposite}}{\text{adjacent}}\right)$$

$$\cot(\theta) = \frac{1}{\tan(\theta)}$$

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

$$\tan(-\theta) = -\tan(\theta)$$

$$\cot(-\theta) = -\cot(\theta)$$