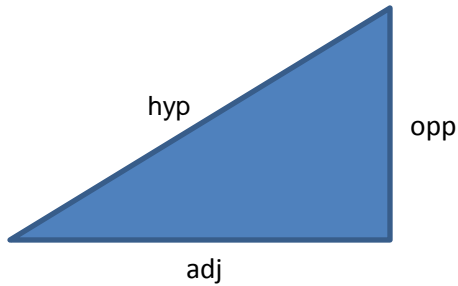


# Trigonometry

## Trigonometric Functions

### Acute Angles



$$\begin{aligned}\sin(-x) &= -\sin x \\ \cos(-x) &= \cos x \\ \tan(-x) &= -\tan x\end{aligned}$$

$$\begin{aligned}\tan x &= \frac{\sin x}{\cos x} \\ \cot x &= \frac{\cos x}{\sin x}\end{aligned}$$

### Basic Trigonometric Identities

$$\sin \theta = \frac{opp}{hyp}, \quad \csc \theta = \frac{hyp}{opp}$$

$$\cos \theta = \frac{adj}{hyp}, \quad \sec \theta = \frac{hyp}{adj}$$

$$\tan \theta = \frac{opp}{adj}, \quad \cot \theta = \frac{adj}{opp}$$

$$\csc x = \frac{1}{\sin x}$$

$$\sec x = \frac{1}{\cos x}$$

$$\cot x = \frac{1}{\tan x}$$

### The Law of Sines

In an  $\triangle ABC$ ,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

### The Law of Cosines

In any  $\triangle ABC$ ,

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

### Trigonometric Function Values of Special Angles

