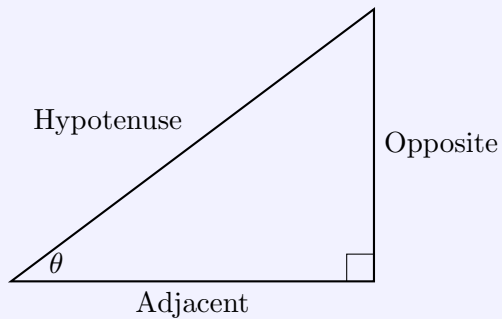


Right Triangle Trigonometry

Theorem. Consider a right triangle with an acute angle θ as shown below. The six trigonometric functions can be defined in terms of the sides of the triangle as follows:



$$\sin(\theta) =$$

$$\csc(\theta) =$$

$$\cos(\theta) =$$

$$\sec(\theta) =$$

$$\tan(\theta) =$$

$$\cot(\theta) =$$

Evaluating Trigonometric Functions

Example. Given a right triangle with an angle θ , suppose the side opposite θ has length 3 and the adjacent side has length 4. Evaluate all six trigonometric functions at θ .

Using a Given Trigonometric Value

Example. If $\sin \theta = \frac{5}{13}$ for an acute angle θ in a right triangle, find the remaining five trigonometric functions.

Application Example

Example. A ladder leans against a wall, forming a 60° angle with the ground. If the bottom of the ladder is 4 feet from the wall, determine the length of the ladder.