Right Angle Trigonometry

Suppose $x = \sin \theta$
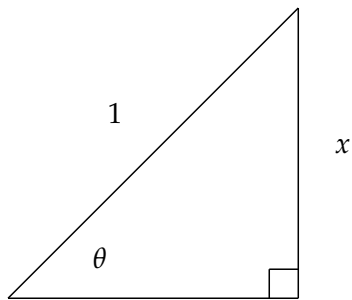
$$\sin \theta = \frac{x}{1} \qquad\qquad \cos \theta =$$
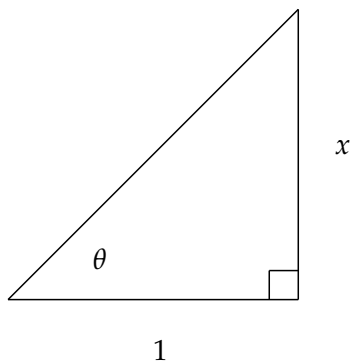
$$\tan \theta = \qquad\qquad \cot \theta =$$

$$\sec \theta = \qquad\qquad \csc \theta =$$

Suppose $x = \tan \theta$

$$\sin \theta = \qquad\qquad \cos \theta =$$

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

$$\sec \theta = \qquad\qquad \csc \theta =$$

Suppose $x = \sec \theta$

$$\sin \theta = \qquad\qquad \cos \theta =$$

$$\tan \theta = \qquad\qquad \cot \theta =$$
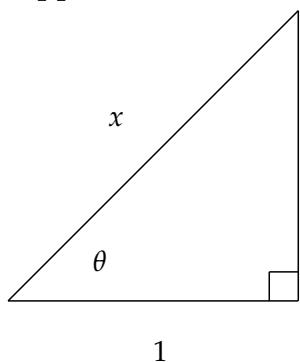
$$\sec \theta = \frac{x}{1} \qquad\qquad \csc \theta =$$

To complete the missing side of the triangles use the Pythagorean Theorem $a^2 + b^2 = c^2$

Identities:

$\sin^2 \theta + \cos^2 \theta = 1, \ \ 1 + \tan^2 \theta = \sec^2 \theta, \ \ 1 + \cot^2 \theta = \csc^2 \theta.$

$\sin 2\theta = 2 \sin \theta \cos \theta,$

$cos2\theta = \cos^2 \theta - \sin^2 \theta = 2\cos^2 \theta - 1 = 1 - 2\sin^2 \theta.$

$\sin^2 \theta = \frac{1}{2}(1 - \cos 2\theta), \ \ \cos^2 \theta = \frac{1}{2}(1 + \cos 2\theta).$