

Reciprocal Identities

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

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

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

Example:

$$\text{if } \sin \theta = \frac{2}{5},$$

$$\text{if } \cos \theta = -\frac{4}{7},$$

$$\text{if } \tan \theta = -\frac{3}{4},$$

$$\text{then } \csc \theta = \frac{5}{2}$$

$$\text{then } \sec \theta = -\frac{7}{4}$$

$$\text{then } \cot \theta = -\frac{4}{3}$$

Quotient Identities

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

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

Example:

$$\text{if } \sin \theta = \frac{3}{5} \text{ and } \cos \theta = -\frac{4}{5},$$

Given $\sin \theta = \frac{4}{5}$ and $\cos \theta = -\frac{3}{5}$, find the other four trigonometric values.

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

Given $\sin \theta = \frac{1}{3}$ and $\cos \theta = \frac{2\sqrt{2}}{3}$, find the other four trigonometric values.

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

Given $\sin \theta = \frac{\sqrt{3}}{2}$ and $\cos \theta = \frac{1}{2}$, find the other four trigonometric values.

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

Given $\sin \theta = -\frac{2\sqrt{5}}{5}$ and $\cos \theta = -\frac{\sqrt{5}}{5}$, find the other four trigonometric values.

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

Reciprocal Identities

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

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

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

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

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

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

Quotient Identities

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

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