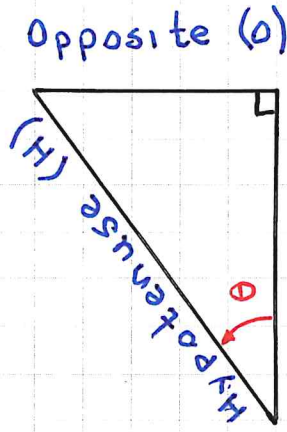


4.3 Right Triangle Trigonometry

Definitions of the Trigonometric Ratios



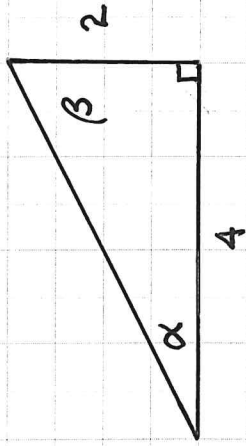
$$\begin{aligned} \text{Sine of } \theta &= \sin \theta = \\ \text{Cosine of } \theta &= \cos \theta = \\ \text{Tangent of } \theta &= \tan \theta = \end{aligned}$$

Adjacent (A)

The Reciprocal Ratios

$$\begin{aligned} \text{Cosecant of } \theta &= \\ \text{Secant of } \theta &= \\ \text{Cotangent of } \theta &= \end{aligned}$$

Ex. ① Given:



a) Find all 6 trigonometric ratios for α .

$$\sin \alpha =$$

$$\csc \alpha =$$

$$\cos \alpha =$$

$$\sec \alpha =$$

$$\tan \alpha =$$

$$\cot \alpha =$$

b) Do the same for β .

$$\sin \beta =$$

$$\csc \beta =$$

$$\cos \beta =$$

$$\sec \beta =$$

$$\tan \beta =$$

$$\cot \beta =$$

Ex. ② Use a calculator to find the following values.

a) $\cot 12.3^\circ$

b) $\csc 32.1^\circ$

c) $\sec 27^\circ 27' 27''$

d) $\cot 1.23$

NOTE: To find the measure of an angle in a triangle given the side lengths, use the INVERSE Trig Functions.

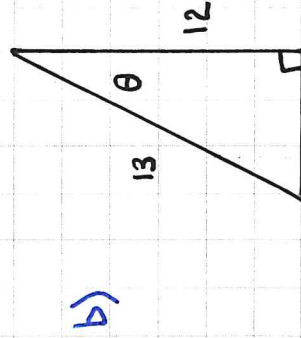
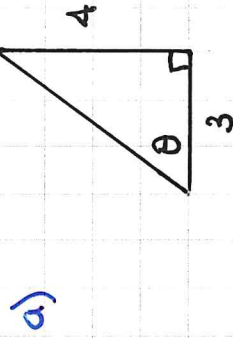
Inverse Sine Inverse Cosine Inverse Tangent

$$\sin^{-1}(x)$$

$$\cos^{-1}(x)$$

$$\tan^{-1}(x)$$

Ex. ③ Find θ , in degrees, to the nearest tenth.



A Trigonometric Identity

Consider the expression: $(\sin \theta)^2 + (\cos \theta)^2$

