

7.1 Right Triangle Trig.

Acute angle

$$0 < \theta < 90$$

$$0 < \theta < \pi/2$$

SOHCAHTOA: $\sin = \text{opp}/\text{hyp}$ $\cos = \text{adj}/\text{hyp}$ $\tan = \text{opp}/\text{adj}$

$\csc = \text{hyp}/\text{opp}$ $\sec = \text{hyp}/\text{adj}$ $\cot = \text{adj}/\text{opp}$

Ex. 1 Find exact value of the six trig functions of the angle θ .

Complementary Angles: Co-functions

Two acute angles are complementary if their sum is a right angle (90 degrees).

The functions sine & cosine, tangent & cotangent and secant & cosecant are called co-functions of each other.

Complementary Angle Theorem: Co-functions of complementary angles (add to 90) are equal.

$$\text{Ex. } \sin 30 = \cos 60$$

$$\tan 40 = \cot 50$$

$$\sec 80 = \csc 10$$

Ex. 2 Use complementary Angle Theorem

a) $\sin 62 = ?$ b) $\tan \pi/12 = ?$ c) $\sin^2 40 + \sin^2 50 = ?$

Ex. 3 Solve a right triangle: given $\alpha = 40$ and $b = 2$

We need to solve for β , a , c

Ex. 4 Solve the right triangle: given $a = 3$, $b = 2$

We need to solve for c , α , β .