Learning Target: I can use trigonometric inverses to find angle measures of a right triangle.
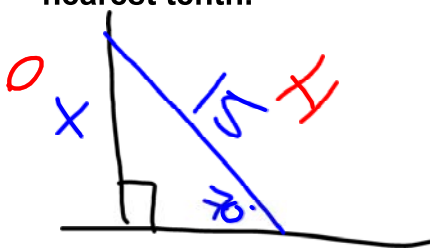
P. 74-75   Using Inverse Trig to Find Angles   14.3

Warm Up

p. 74

A ladder that is 15 feet long is leaning against a wall. The ladder makes an angle of 70° with the ground. Determine how high up the wall the ladder reaches. Draw a picture, round your answer to the nearest tenth.

$$\sin 70° = \frac{x}{15}$$

$$15 \cdot \sin 70 = x$$

$$x = 14.1 \text{ ft.}$$

We use the Inverse Trigonometric Functions to find a missing angle <u>when given 2 sides of a right triangle</u>

Calculator Entry:

2nd	SIN COS TAN	Fraction or Number	Enter

$$SIN^{-1}$$
$$COS^{-1}$$
$$TAN^{-1}$$

p. 75

		SIN COS TAN	Fraction or Number	
Calculator Entry:	**2nd**			**Enter**

Use the correct inverse function of your calculator to solve for the missing angle in degrees. If necessary, round to the nearest tenth.

1) $\sin A = \frac{5}{8}$

$A = \sin^{-1}\left(\frac{5}{8}\right)$

$A = \underline{38.7^\circ}$

2) $\tan C = \frac{2}{9}$

$C = \underline{12.5^\circ}$

3) $\cos B = 0.21$

$B = \underline{77.9^\circ}$

Find the measure of angles A and B. If necessary, round to the nearest tenth.

4)
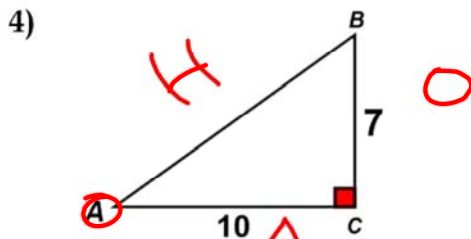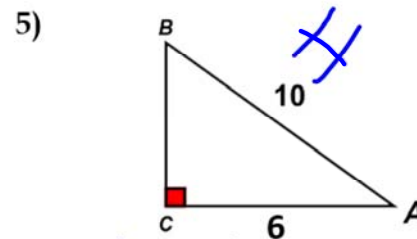

$\tan A = \frac{7}{10}$

$A = \tan^{-1}\left(\frac{7}{10}\right)$

$A = \underline{35.0^\circ}$

$B = \underline{55.0^\circ}$ $(90-35)$

5)
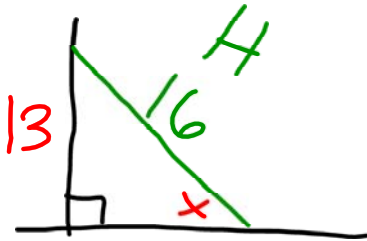

$\cos A = \frac{6}{10}$

$A = \underline{53.1^\circ}$

$B = \underline{36.9^\circ}$

6) A 16-foot ladder is propped against a building. It reaches a height of 13 feet above the base of the building. What angle does it form with the ground? Draw a picture, set up the equation, then solve. Round to the nearest tenth.

$$\sin X = \frac{13}{16}$$

$$X = \sin^{-1}\left(\frac{13}{16}\right)$$

$$X = 54.3°$$

Assignment

Finding Missing Angles with Inverse Trig Functions

Textbook Return Wednesday!