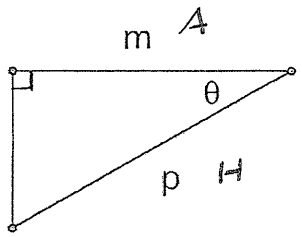
SOH CAH TOA

Trig Pre-Quiz Chapter 1 **Name** _____

1) Identify each ratio.

a) $\sin\theta = \frac{n}{p}$ b) $\cos\theta = \frac{m}{p}$ c) $\tan\theta = \frac{n}{m}$

d) $\csc\theta = \frac{p}{n}$ e) $\sec\theta = \frac{p}{m}$ f) $\cot\theta = \frac{m}{n}$



2) Find each θ to the accuracy indicated

a) $\tan\theta = 1.895$ (to two decimal places)

$\theta = \tan^{-1}(1.895)$

$= 62.18°$

b) $\theta = \arccos 0.3872$ (to the nearest 10')

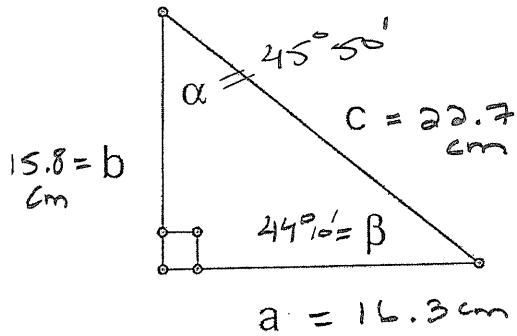
$\theta = \cos^{-1}(0.3872)$

$= 67°10'$

c) $\theta = \sin^{-1} 0.2183$ (to nearest second)

$\theta = 12°36'33''$

3) Use the given information to solve the triangle pictured in the figure below. Show your Work.



$c = 22.7$ cm

$\beta = 44°10'$

$\alpha = 90 - 44°10'$

$\alpha = 45°50'$

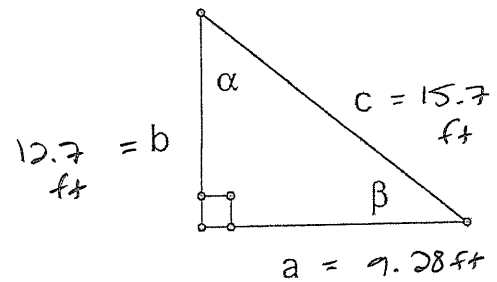
$22.7(\sin 44°10') = \left(\frac{b}{22.7}\right)22.7$

$b = 15.8$ cm

$22.7(\cos 44°10') = \left(\frac{a}{22.7}\right)22.7$

$a = 16.3$ cm

4) Use the given information to solve the triangle pictured in the figure below. Give each angle to the nearest 10' and the side to three significant digits.



$c = 15.7$ ft

$a = 9.28$ ft

$9.28^2 + b^2 = 15.7^2$

$-9.28^2 \quad -9.28^2$

$\sqrt{b^2} = \sqrt{160.3716}$

$b = 12.7$ ft

$\cos B = \frac{9.28}{15.7}$

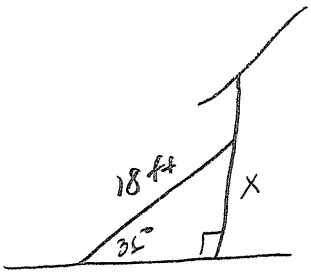
$B = \cos^{-1}\left(\frac{9.28}{15.7}\right)$

$B = 53°50'$

$\alpha = 90 - 53°50'$

$\alpha = 36°10'$

5) An 18-foot ladder is leaning up against a house. The ladder makes a 36° with the ground. How high up the house will the top of the ladder reach?

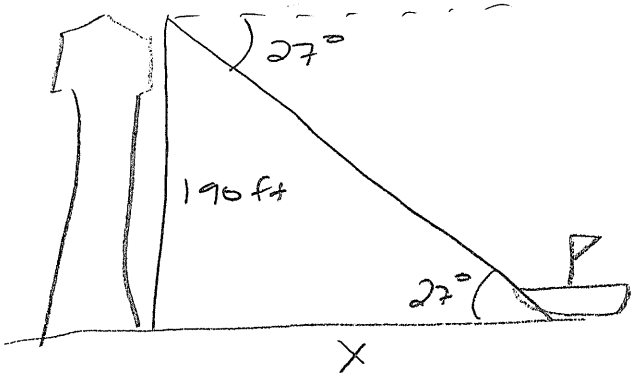


$18(\sin 36^\circ) = \left(\frac{x}{18}\right)18$

$x = 10.58 \rightarrow$ **11 ft**

2 sig. dig.

6) The angle of depression from the top of the 190 foot lighthouse to a boat in the ocean is 27°. How far is the boat from the base of the lighthouse?



$\frac{\tan 27^\circ}{1} = \frac{190}{x}$

$\frac{190}{\tan 27^\circ} = \frac{x \tan 27^\circ}{\tan 27^\circ}$

$x = 372.89$

$=$ **370 ft**

2 sig. dig.