Inverse Trig Functions

Section 4.7

Sin (Θ)

Trig Function

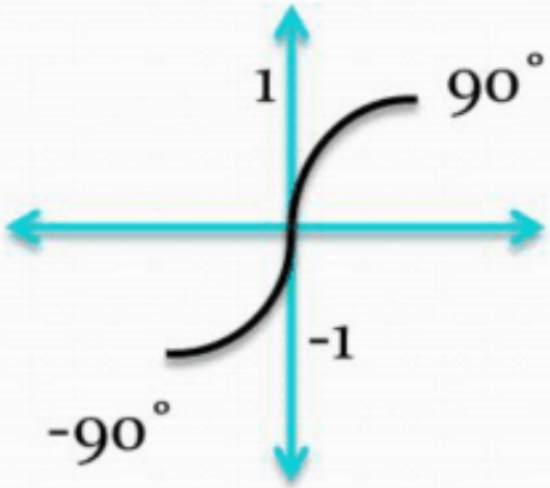
$y = \sin \Theta$

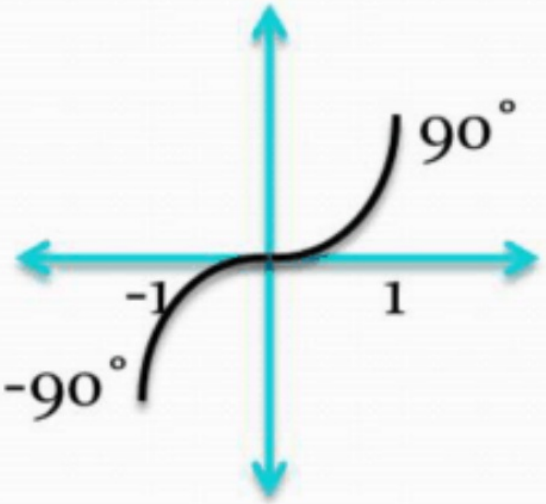
Inverse Function

$y = \sin^{-1} \Theta$

$y = \arcsin \Theta$

Interchange the domain and the range





Cos (Θ)

Trig Function

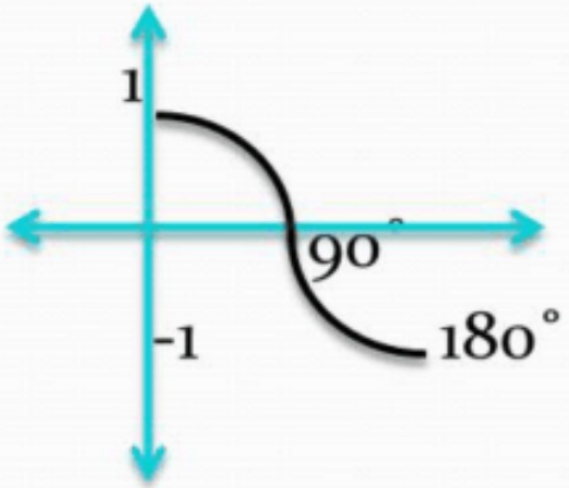
$y = \cos \Theta$

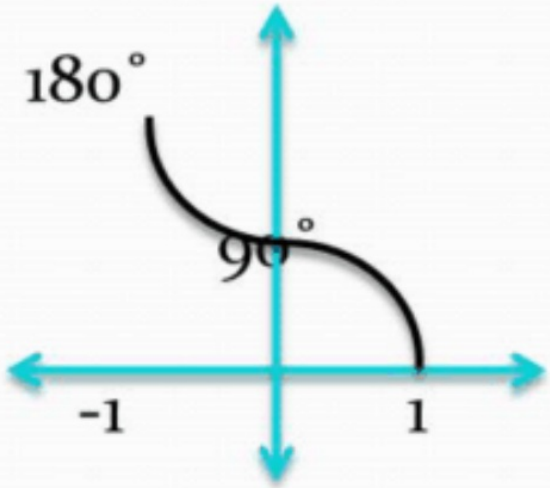
Inverse Function

$y = \cos^{-1} \Theta$

$y = \arccos \Theta$

Interchange the domain and the range





Tan (Θ)

Trig Function

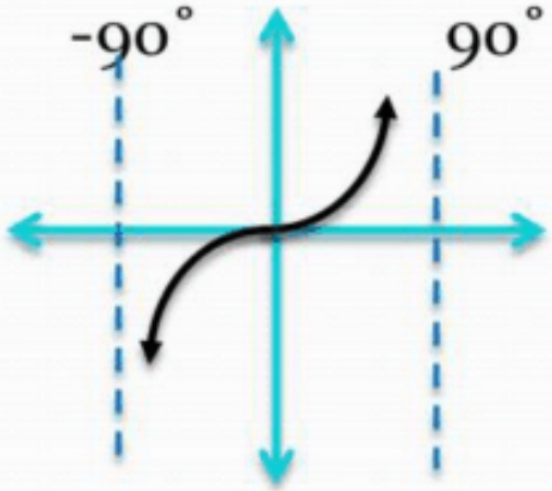
$y = \tan \Theta$

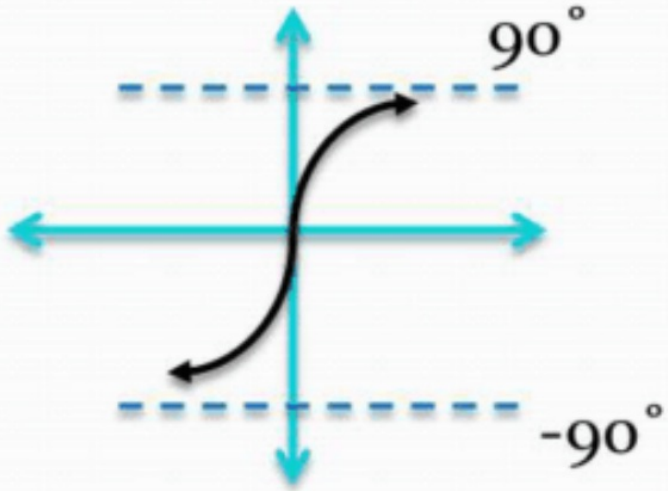
Inverse Function

$y = \tan^{-1} \Theta$

$y = \arctan \Theta$

Interchange the domain and the range





Classwork:

- Pg 349 # 1-17 odd, 37, 39, 43-53

(37) $\tan\theta = \frac{x}{4}$

$\theta = \tan^{-1}\left(\frac{x}{4}\right)$

(39) $\sin\theta = \frac{x+2}{5}$

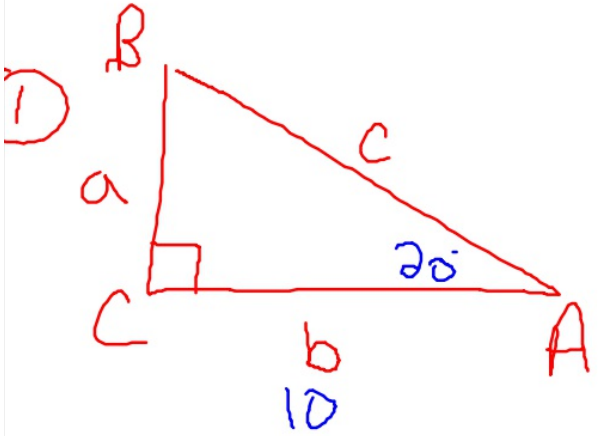
$\theta = \sin^{-1}\left(\frac{x+2}{5}\right)$

Section 4.8 Applications

- Pg 359 # 1, 3, 5, 15, 17, 19

Home work

- Pg 349 # 19-33 odd
- Pg 359 # 2, 4, 6, 16, 18, 20-22



$\tan 20 = \frac{a}{10}$

$\cos 20 = \frac{10}{c}$

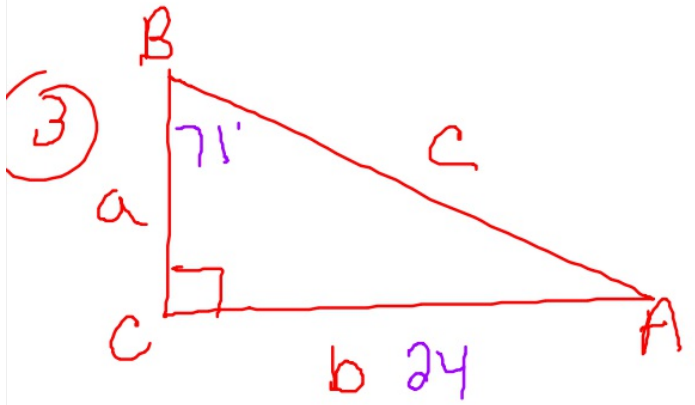
$c = 10/\cos 10$.

$\angle A = 20°$ $a = 3.64$

$\angle B = 70°$ $b = 10$

$\angle C = 90$ $c = 10.64$

③



$\tan 71^\circ = \frac{24}{a}$

$a = 24 / \tan 71^\circ$

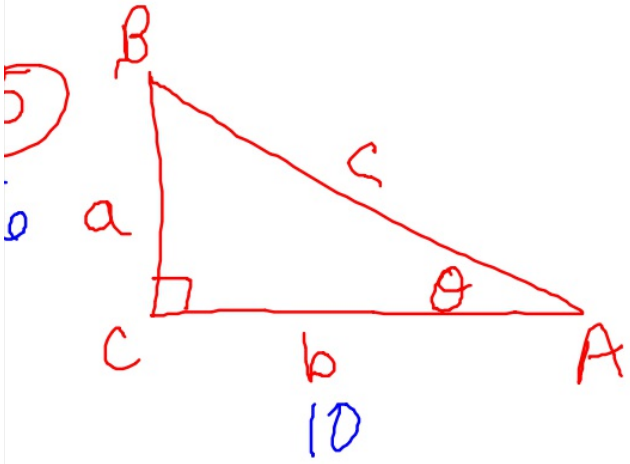
$\sin 71 = \frac{24}{c}$

$C = 24 / \sin 71^\circ$

$\angle A = 19^\circ$ $\quad a = 8.26$

$\angle B = 71^\circ$ $\quad b = 24$

$\angle C = 90^\circ$ $\quad c = 25.38$



$\measuredangle A = 30.96°$ $\quad a = 6$

$\measuredangle B = 59.04°$ $\quad b = 10$

$\measuredangle C = 90$ $\quad c = 2\sqrt{34}$

$6^2 + 10^2 = c^2$

$136 = c^2$

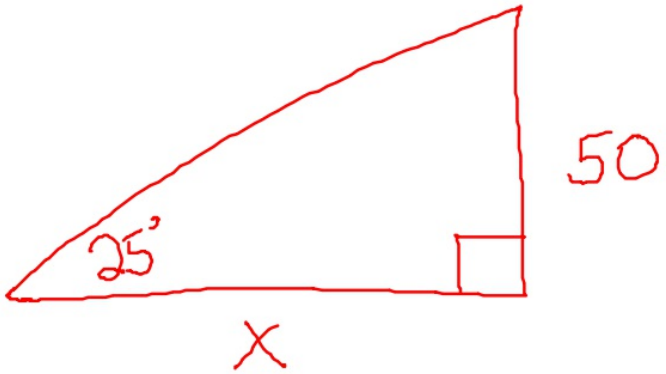
$c = \sqrt{136}$

$c = 2\sqrt{34}$

$\tan\theta = \frac{6}{10}$

$\theta = \tan^{-1}(6/10)$

5



$\tan 25 = \frac{50}{x}$

$x = \frac{50}{\tan 25}$

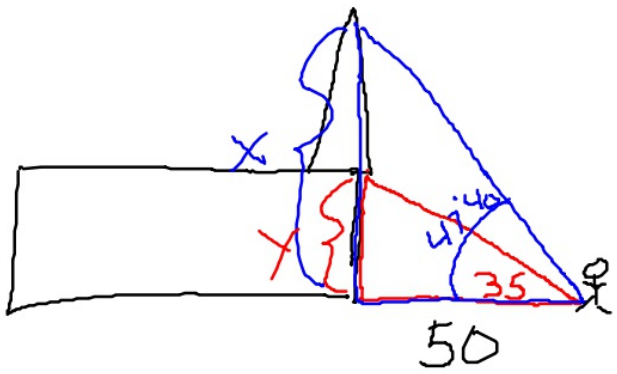
$x = 107.23$ ft.

17

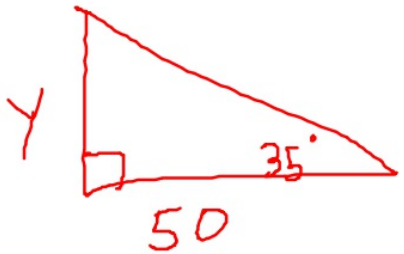
$\sin 80 = \frac{x}{20}$

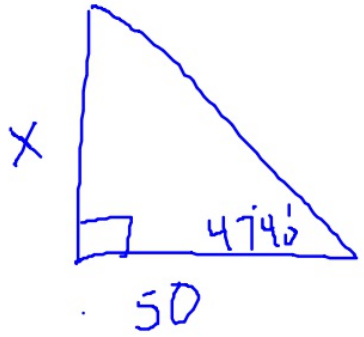
$x = 19.70$ ft.

19



$$\begin{array}{r} 54.89 \\ -\ 35.01 \\ \hline 19.88 \text{ ft} \end{array}$$





$\tan 35 = \frac{Y}{50}$

$Y = 35.01$

$\tan 47°40' = \frac{X}{50}$

$X = 54.89$