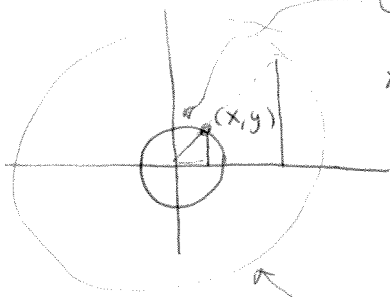


# Right Triangle Trig

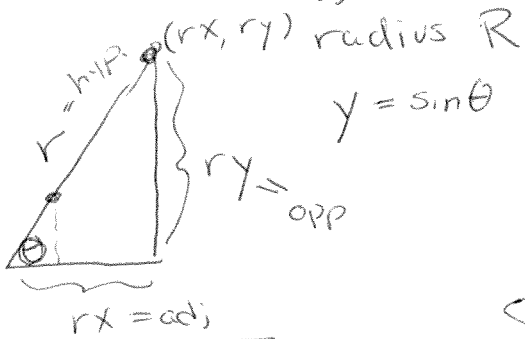
UNIT CIRCLE



$$x = \cos \theta$$

$$y = \sin \theta$$

Bigger circle

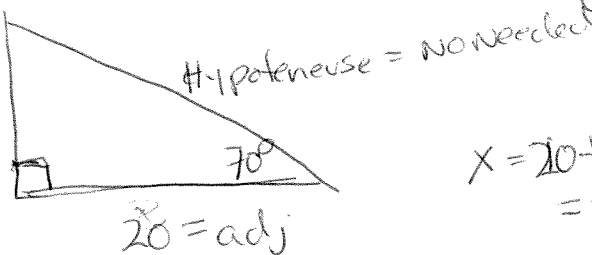
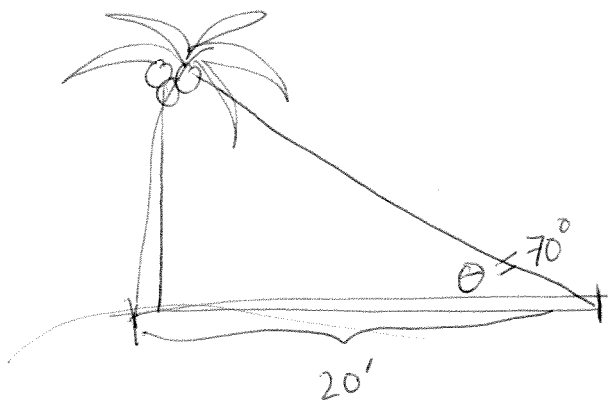


$$y = \sin \theta$$

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$	$= \frac{ry}{r} = y$
$\cos \theta = \frac{\text{adj}}{\text{hyp}}$	
$\tan \theta = \frac{\text{opp}}{\text{adj}}$	

Sin  
 Opp  
 Hyp  
 Cos  
 Adj  
 Hyp  
 Tan  
 Opp  
 Adj

EX



$$x = \text{opp. ?}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\text{so } \tan 70^\circ = \frac{x}{20}$$

$$x = 20 \tan 70^\circ$$

$$= 54.9$$

$$55'$$

EX



$$6 = \text{opp}$$

We care about hypotenuse + opp

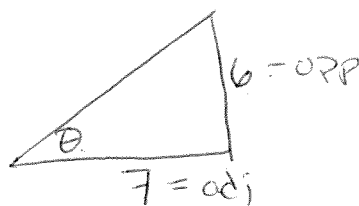
$$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \sin 20^\circ = \frac{6}{\text{hyp}}$$

$$x = \frac{6 \times 1}{\sin 20^\circ} = \frac{6}{\sin 20^\circ} = 17.54 \text{ mi}$$

$$d = r \cdot t \quad t = \frac{d}{r} = \frac{17.54}{500} = .0351$$

$$= 2.1 \text{ mi}$$

EX



$$T = ?$$

$$O = 6$$

$$A = 7$$

$$\tan \theta = \frac{6}{7}$$

Math Solver:  
 $0 = \tan x - \frac{6}{7}$   
 Guess  $x = 45$   
 (Alpha) Center  
 $x = 40.6$

$$y_1 = \tan x$$

$$y_2 = 6/7$$

calc 5: Intersect

