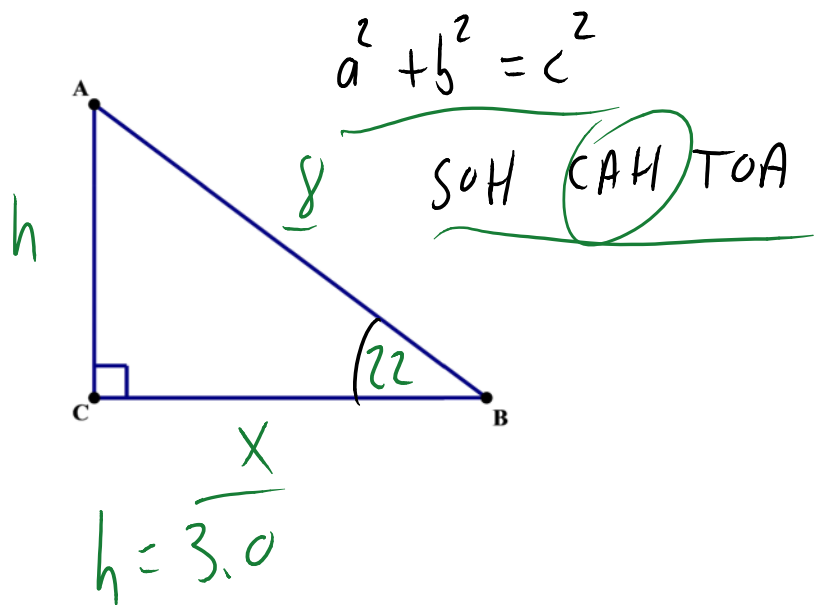
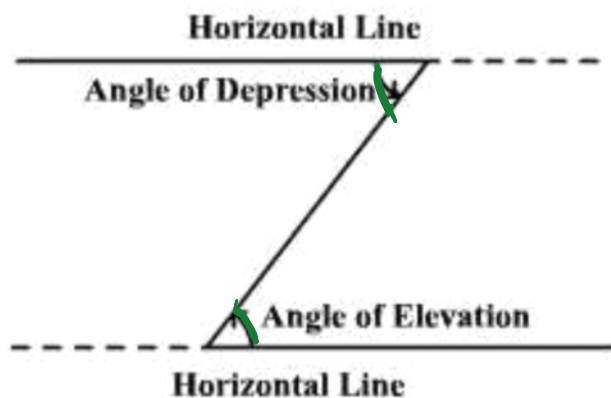


# Trigonometry:

## First Thing: A quick quiz on units and scientific notation.

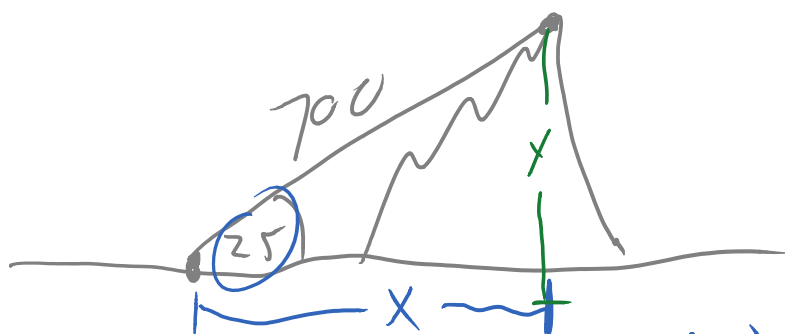
- Organize yourselves into groups of two or three.
- One person should have their phone out (a person with a data plan)
- Go to [socrative.com](https://www.socrative.com)
  - On mobile student login is in the menu on the top right.
- My room is Math1337
- Give yourselves a team name
  - GOOD LUCK





Let's Practice:

The angle of elevation (from level ground to the top) of Big White is  $25^\circ$ .  
If a lift carries the skiers and boarders 700 m along the slope what is the vertical and horizontal distances traveled?



SOH CAH TOA  
 $x = \text{adj}$      $y = \text{opp}$   
 $700 = \text{hyp}$

$$\sin(25) = \frac{y}{700}$$

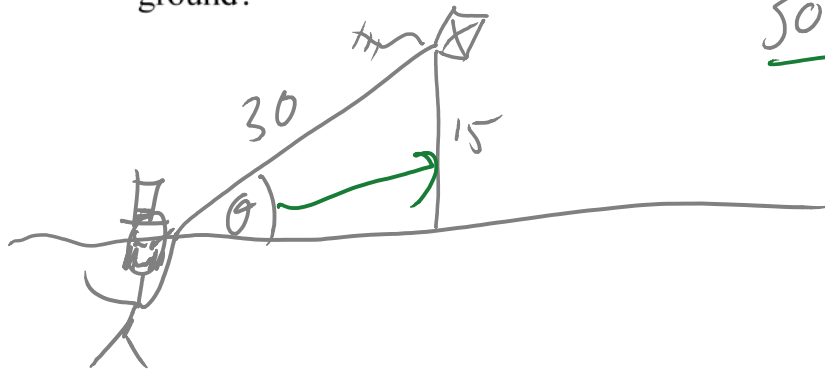
$$y = 700 \sin(25)$$

$$= 296$$

$$\cos(25) = \frac{x}{700}$$

$$x = 700 \cos(25) = 634$$

Ben Franklin's kite had a 30 m long string and was 15 m above his eye level when struck by lightning. What angle did it make with the ground?



SOH CAH TOA

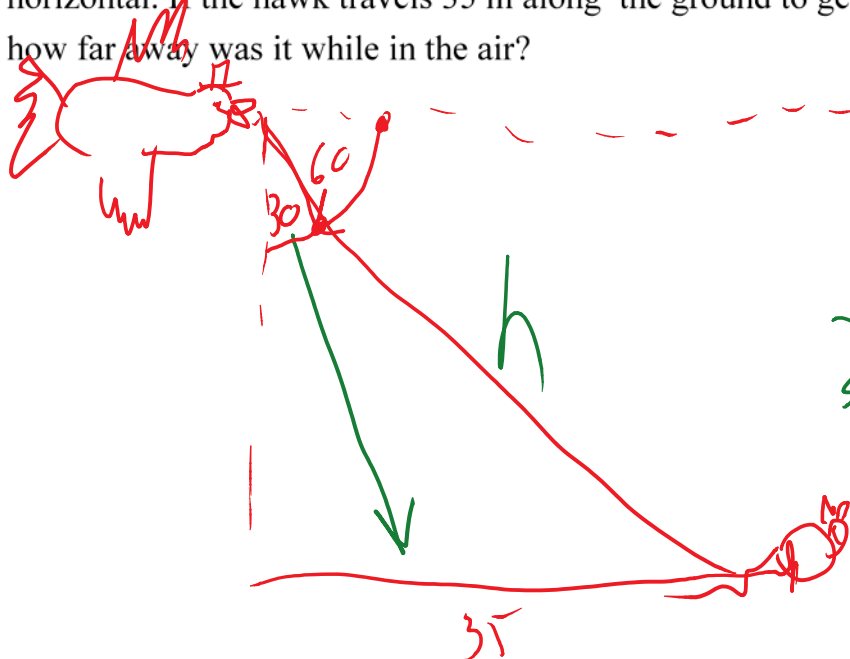
$$\sin(\theta) = \frac{15}{30}$$

$$\theta = \arcsin\left(\frac{15}{30}\right)$$

$$= \sin^{-1}\left(\frac{15}{30}\right)$$

$$\theta = 30$$

A hawk dives to catch a mouse making an angle of  $60^\circ$  from the horizontal. If the hawk travels 35 m along the ground to get the mouse how far away was it while in the air?



SOH CAH TOA

$$\sin(30) = \frac{35}{h}$$

$$h = \frac{35}{\sin(30)}$$

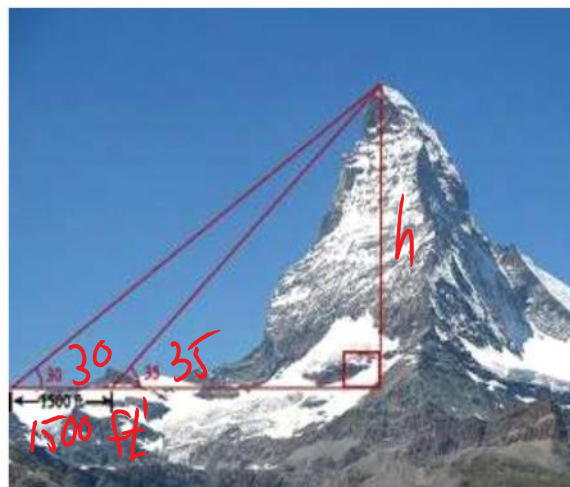
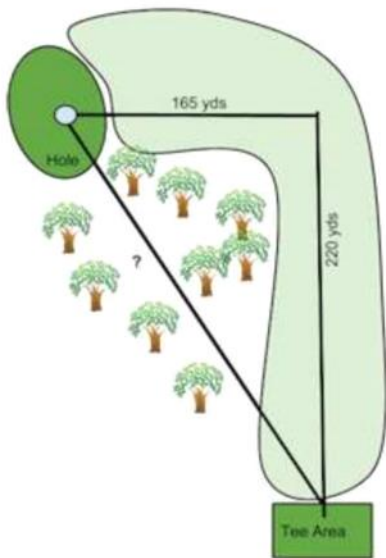
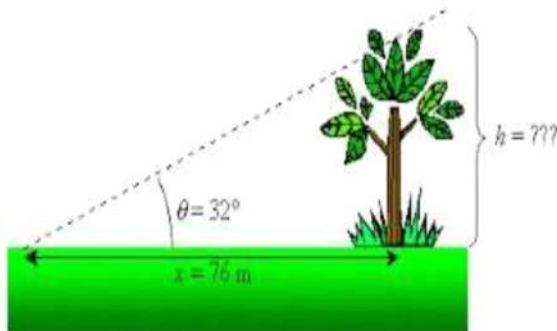
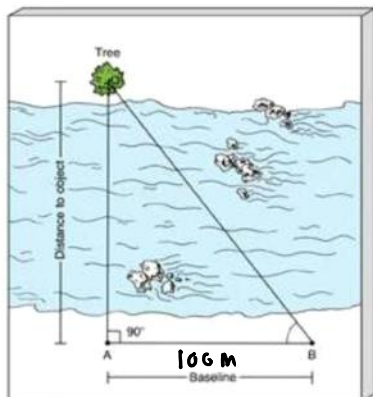
$$= 70\text{m}$$

A tree is snapped by the wind and the top hits the ground 12 m from the broken portion of the base. If it makes an angle of  $40^\circ$  from the ground how tall was the tree before breaking?

A wall is 40 m high, and a ladder is leaning against it making a  $65^\circ$  angle with the ground. How long is the ladder?

## On your own:

Careful for #4 (hint: make 2 equations)



$$\frac{3}{2} + \frac{1}{2} = \frac{3+1}{2}$$

$$x_2 = 26,200''$$