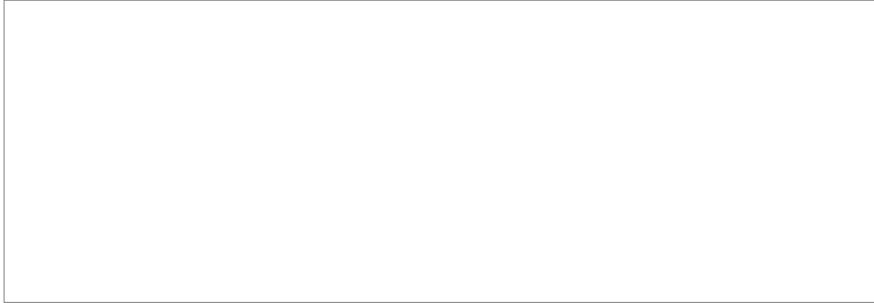


## Vectors Video Notes

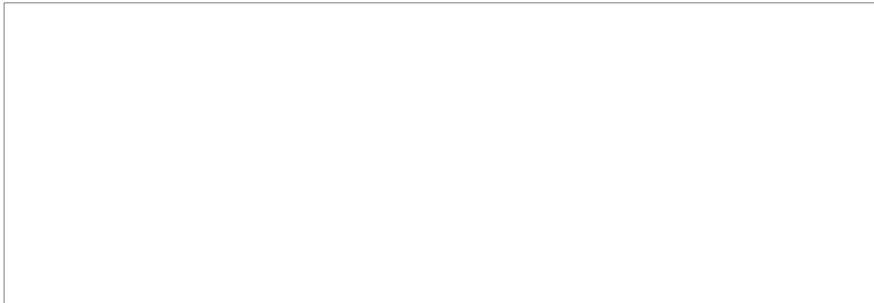
Before vectors were understood, we thought \_\_\_\_\_  
\_\_\_\_\_ .

We draw a vector as an \_\_\_\_\_ .

We can add vectors like this:



And subtract vectors like this:

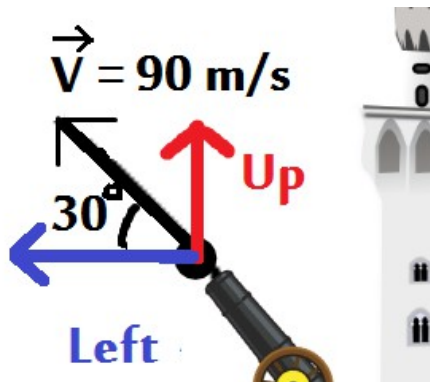


In physics, we need to split vectors into their x and y components.

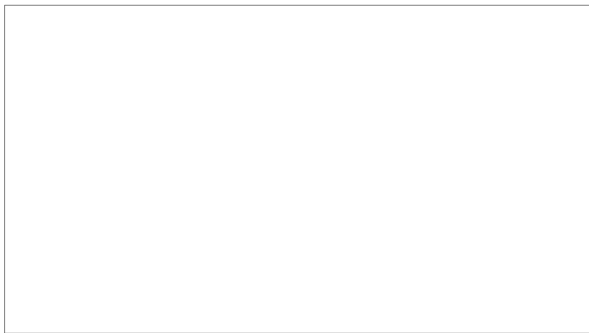
Cannonball path diagram:



Example with numbers:



Move the up component to make a vector triangle:



Then use SOHCAHTOA to find equations for the up part ( $V_y$ ) and the left part ( $V_x$ ):

$$\cos \theta = \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

Plug numbers into the equation to get:

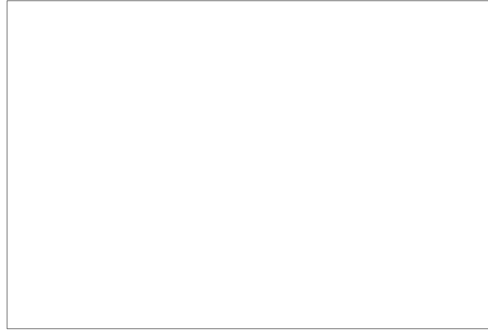
$$V_y = \frac{\quad}{\quad} = \frac{\quad}{\quad} \text{ m/s up}$$

$$V_x = \frac{\quad}{\quad} = \frac{\quad}{\quad} \text{ m/s left}$$

You can draw a vector triangle for anything that's a vector. Examples:

Force:

Electric Field:



$V_x$  is a constant velocity in the x direction.  $V_i$  is an initial velocity. It will change over time because of \_\_\_\_\_.

$V_x$  can be used in this equation:

$V_i$  can be used in the equations of \_\_\_\_\_.