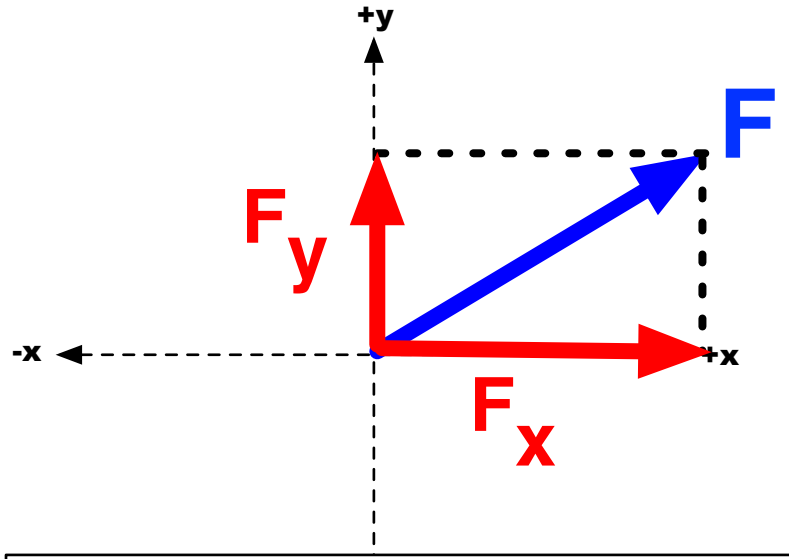
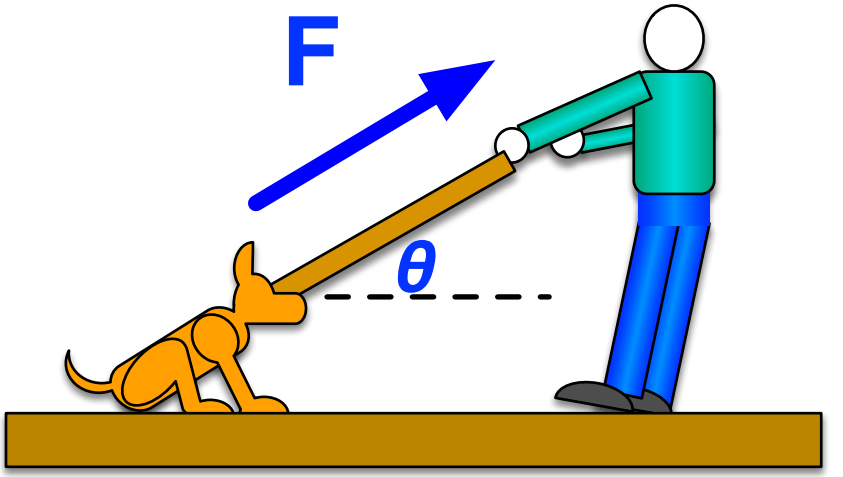
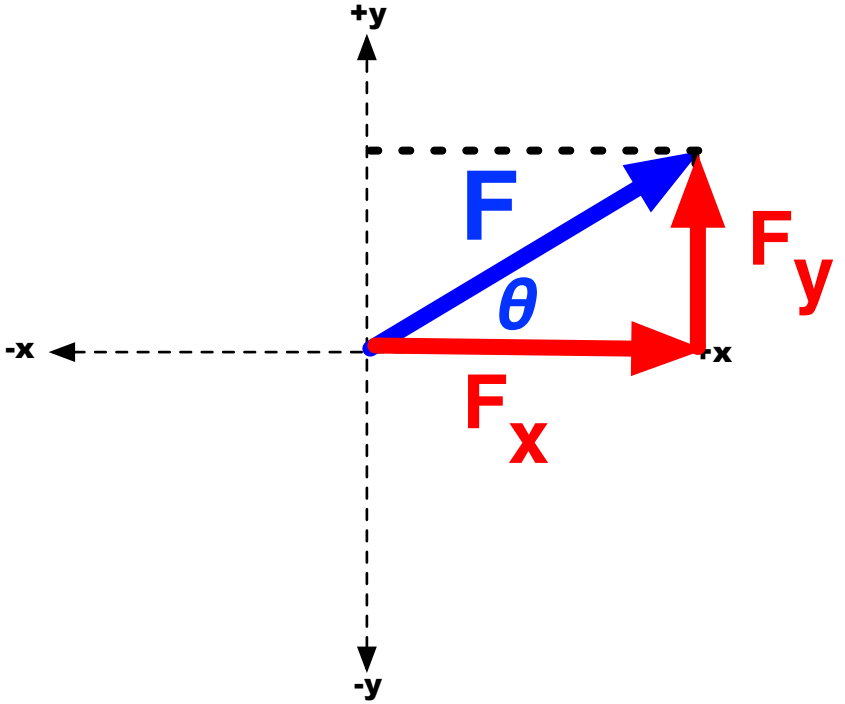




Do the lengths of the components change if we shift the F_y to the left?



What kind of triangle do we have?

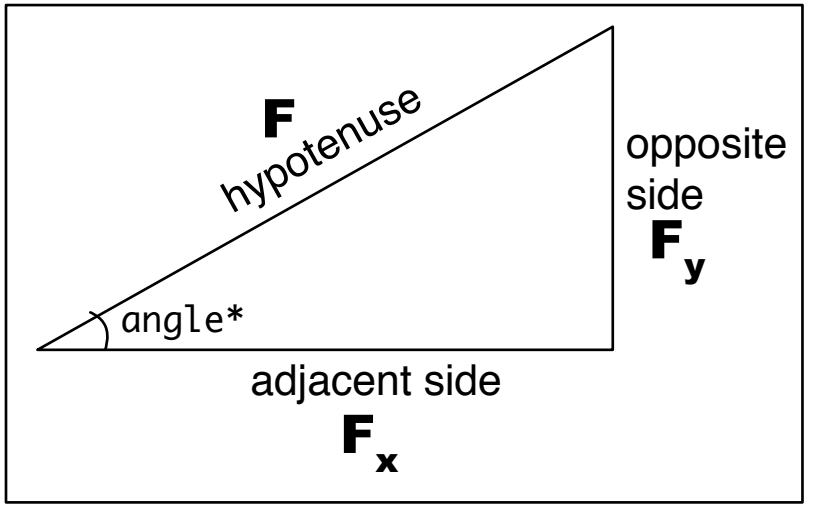
What do you know about the relationship between the sides?

What do you know about the relationship between the angle and the sides?

Using Trigonometry to Get Components

For the x-component, use COSINE*

$$\cos(\text{angle}) = \frac{\text{opposite}}{\text{hypotenuse}}$$

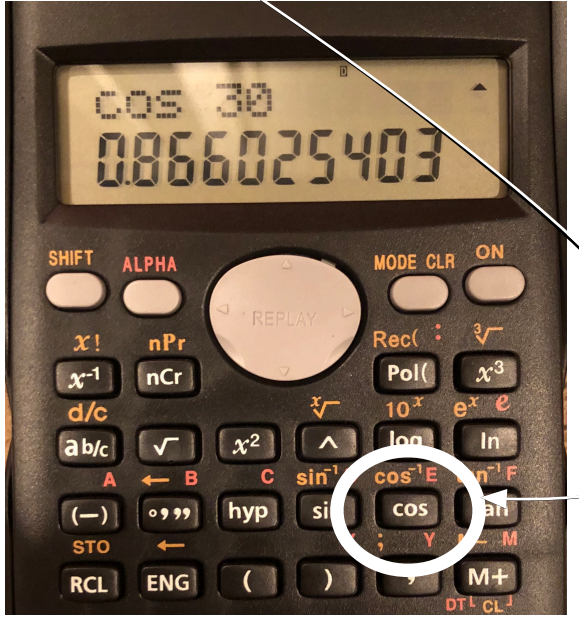


For the y-component, use SINE*

$$\sin(\text{angle}) = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos(\text{angle}) = \frac{F_x}{F}$$

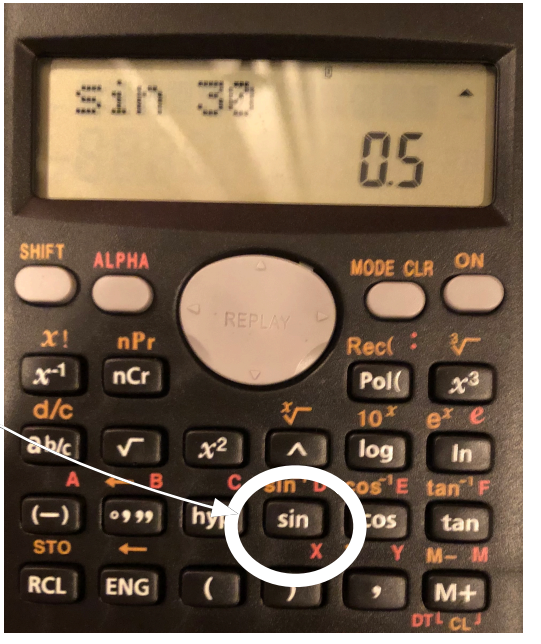
$$\sin(\text{angle}) = \frac{F_y}{F}$$



*** CAUTION**

This is for angles with the x-axis.

If the angle is with the y-axis, sine & cosine switch!

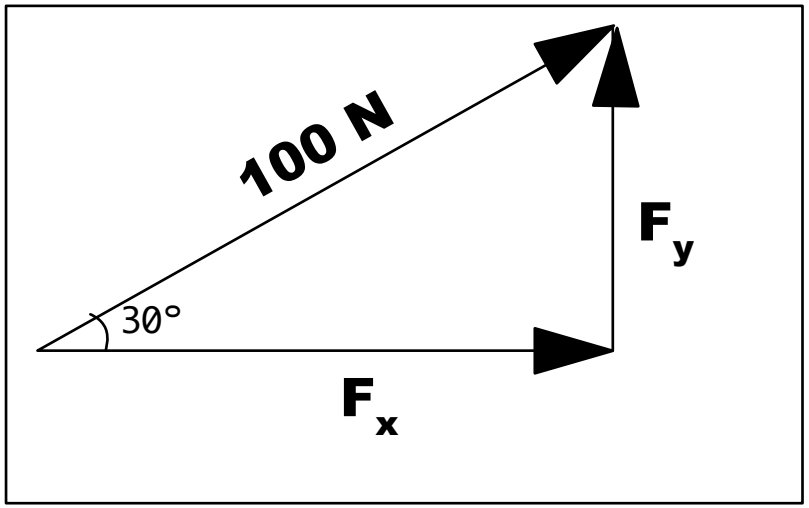


$$\cos(\text{angle}) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Example

$$\sin(\text{angle}) = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos(\text{angle}) = \frac{F_x}{F}$$



$$\sin(\text{angle}) = \frac{F_y}{F}$$

$$\cos(30^o) = \frac{F_x}{100\ N}$$

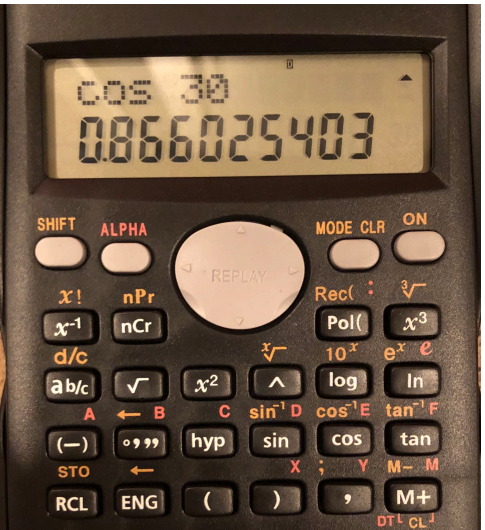
$$\sin(30^o) = \frac{F_y}{100\ N}$$

$$0.866 = \frac{F_x}{100\ N}$$

$$0.5 = \frac{F_y}{100\ N}$$

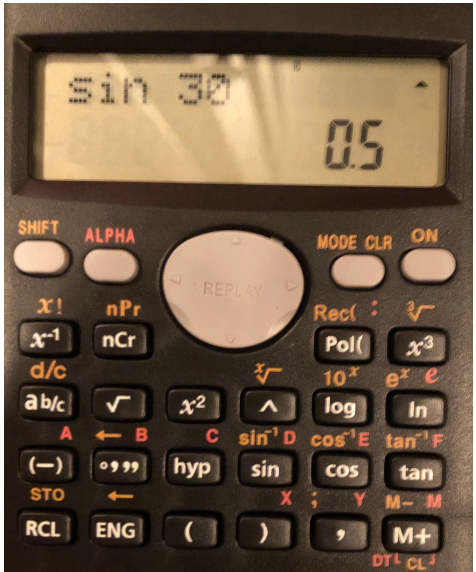
$$0.866(100\ N) = F_x$$

$$0.5(100\ N) = F_y$$



$$86.6\ N = F_x$$

$$50\ N = F_y$$



CAUTION
Make sure your calculator is in DEGREES mode for Physics Class