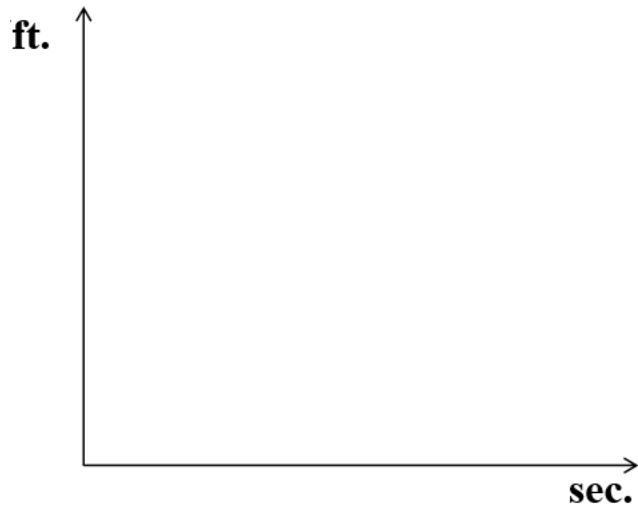


"What goes up must come down"

Draw a sample of what graph is expected when a ball is thrown in the air.



List some of the key data from our experiment in the table below.

Time(sec.)	Height(ft.)

What elements of the key data can be used to determine a function for our experiment that can be used to determine any height at any time?

The formula $H = -\frac{1}{2}gt^2 + v_0t + h_0$ can be used to find the height of an object (**H**), after (**t**) seconds, thrown with a velocity (**v₀**), from an original height (**h₀**). Note: g is the constant for gravity which is always 32 ft/sec²

Use your vertex and any point on the parabola to find an equation for your data in vertex form. Remember that the coefficient of the quadratic term is the effect of gravity. Test your equation by placing it into the Rewrite the equation in $y = ax^2 + bx + c$ form.

Compare your equation to the general equation for the height of an object being tossed.

- 1) What initial velocity was used to toss the ball?
- 2) What was the original height of the ball?
- 3) What was the maximum height?
- 4) How long until the ball hit the ground?