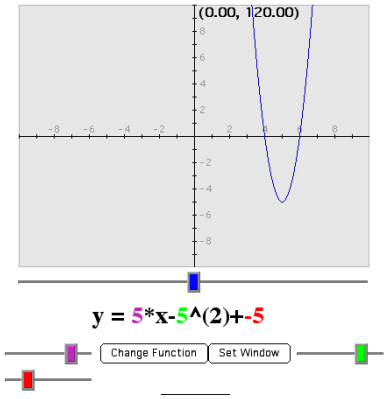
Activity: Function Flyer



In this activity you are going to build your insight about linear, quadratic, exponential, and sine functions.

We will examine the basic functions below, and learn how changing the coefficients affects the graph of the function.

Linear: $y = a\,x + b$

Quadratic: $y = a\,(x + b)^2 + c$

Exponential: $y = a\,e^{b\,x\,+\,c} + d$

Sine: $y = a\,\sin(b\,x + c) + d$

Start the function flyer activity. You should see the graph space along a place to set the function.

website: http://www.shodor.org/interactivate/activities/FunctionFlyer/

Activity 1: Linear Functions. Enter the linear function with each coefficient set to 0: 0 * x + 0, and then complete the following after experimenting with the slider bars:

(a) The *x* coefficient controls:

(b) The constant term controls:

Activity 2: Quadratic Functions. Enter the quadratic function with each coefficient set to 0: 0 * (x + 0)^2 + 0, and then complete the following after experimenting with the slider bars:

(a) The coefficient of (*x* + *b*) controls:

(b) The constant inside the square controls:

(c) The constant term controls:

Activity 3: Exponential Functions. Enter the exponential function with each coefficient set to 0: 0 * exp(0 * x + 0) + 0, and then complete the following after experimenting with the slider bars:

(a) The coefficient of the exponential controls:

(b) The coefficient of x controls:

(c) The constant term inside the exponential controls:

(d) The constant term controls:

Activity 4: Sine Functions. Enter the sine function with each coefficient set to 0: 0 * sin(0 * x + 0) + 0, and then complete the following after experimenting with the slider bars:

(a) The coefficient of the sine controls:

(b) The coefficient of x controls:

(c) The constant term inside the sine controls:

(d) The constant term controls:

Capstone: Can you make any generalizations? For example, what does the constant term control? Is it always the same? What about the constant added to x? What about the coefficient of x?