Exercise – Graph Functions

1. Using the techniques described in the lecture, implement code that changes values in the way described. For each case, you are given and input value. For any given input value, your code should output a value that follows the described behaviour

EXAMPLE QUESTION: Output should be 0 when input is 0. Output should be 0.5 when input is 1. Changes at a constant speed  
  
ANSWER

The question asked for a function that goes from 0-0.5 as the input goes from 0-1. It also said for the output to change at a constant rate. This means it is asking for a line. The output needs to be 0.5 when the input is 1, so we simply multiply the input my 0.5.

float LinearHalf(float x)

{

float result = x \* 0.5f;

return result;

}

* 1. Input and output both start at 0 and end at 1, starts slowly and then speeds up towards 1
  2. Input and output both start at 0 and end at 1, starts fast, and the slows down towards 1
  3. The output increases to 1 when input is at 0.5, then decreases back to 0 when the input is 1. Moves at a constant speed
  4. Recreate the bounce function from the lecture slides, but instead of starting at 0 and bouncing off the y=0 line, it should start at 0 and bounce from the y=1 line.
  5. When input is 0 output is 0, when input is 1, output is 0. A parabolic arc starts at zero, hits a peak of 1 when the input is at 0.5 and falls back to 0 when input is 1.

1. You should have access to code that can graphically display points and lines. Write a function that can display each of the previous functions. The following psuedocode should help you implement what you need.

FOR i = 0 ; i < 100 ; ++i

x = i / 100

x2 = (i+1) / 100

y = Equation(x);

y2 = Equation(x2);

DrawLine(x,y,x2,y2);

ENDFOR