

Precalc Warm Up – 9/13/10

Name: _____

Block: _____

- 1) The following table represents the height of water in a bathtub over time as you are filling it up. Use the table to answer the following question.

Time (in minutes)	0	1	2	3	4	5
Height of the water (in inches)	0	2	6	12	20	30

What is the average rate of change of the height of water in the bathtub from minute 0 to minute 5? Be sure to include proper units on your answer.

Average Rate of Change PROBLEM SOLVER

Name: _____ Date: _____ Period: _____

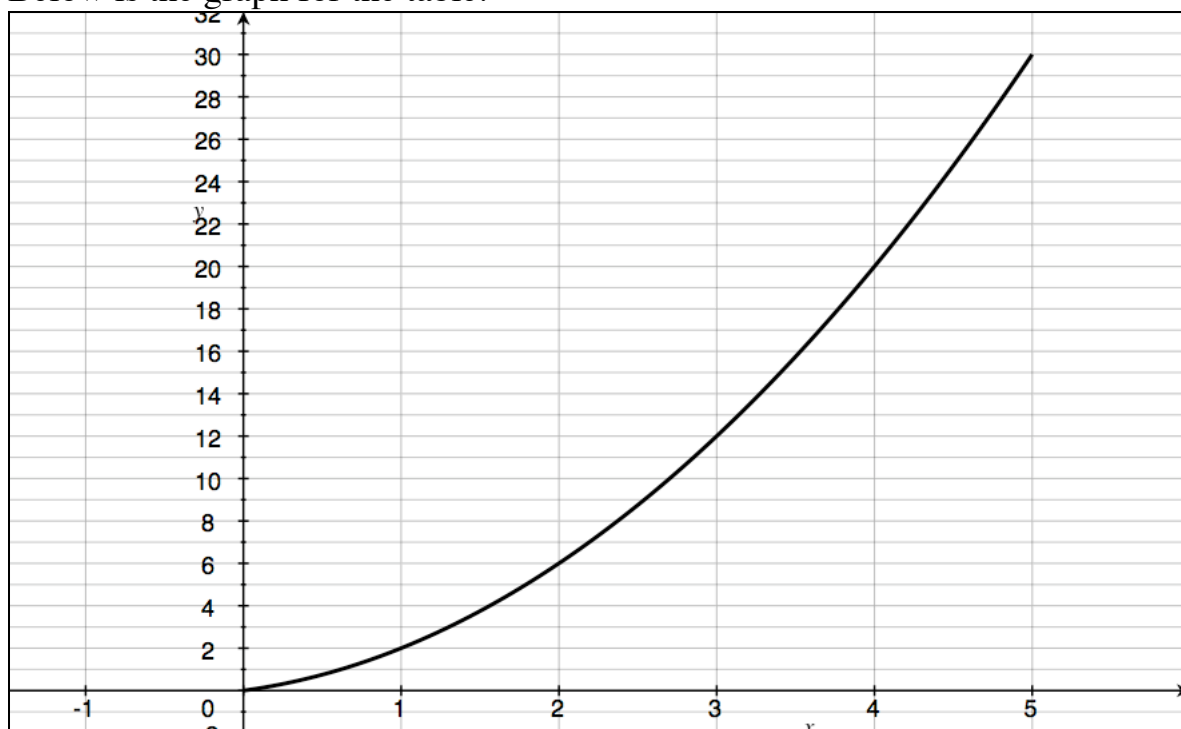
Concept – Students will be able to find the average rate of change given the equation of a nonlinear function.

Consider the setup from today's warm up:

- 1) The following table represents the height of water in a bathtub over time as you are filling it up. Use the table to answer the following question.

Time (in minutes)	0	1	2	3	4	5
Height of the water (in inches)	0	2	6	12	20	30

Below is the graph for the table:



The third way for us to represent this function is by an equation.

$$f(x) = x^2 + x$$

Function notation:

If $f(x) = x^2 + x$ then find $f(5)$

Quick Practice

1) $f(x) = 2x + 7$

a. Find $f(3)$

b. Find $f(5)$

c. Find $f(-4)$

2) $f(x) = x^2$

a. Find $f(3)$

b. Find $f(5)$

c. Find $f(-4)$

FINDING AVERAGE RATE OF CHANGE WITH AN EQUATION

If $f(x) = x^3$ then find the average rate of change on the interval $[1,3]$ (that means between $x=1$ and $x=3$).

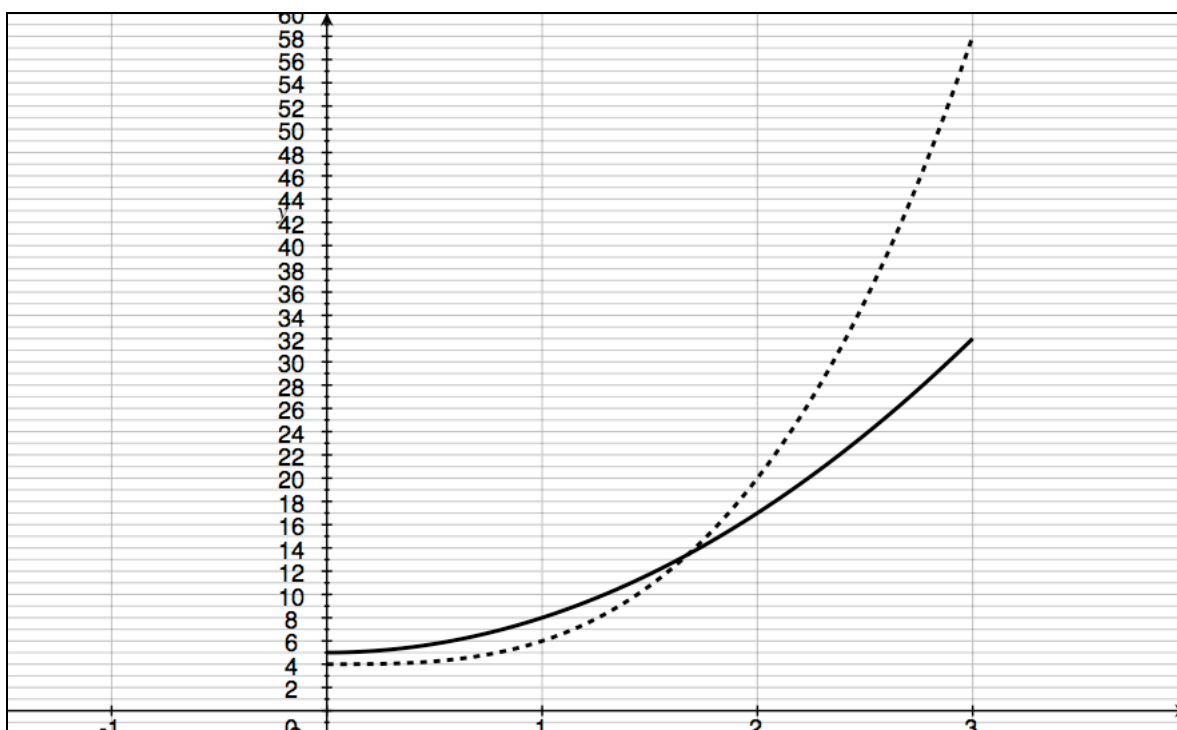
FIND THE FASTEST RATE – Which equation has a greater average rate of change for the interval $[0,3]$ (from $x=0$ to $x=3$)?

Equation 1

$$f(x) = 3x^2 + 5$$

Equation 2

$$g(x) = 2x^3 + 4$$



PRACTICE

Find the average rate of change for the following equation for the interval $[2, 5]$.

$$f(x) = -x^2 + 10$$

Precalc – Exit Slip – 9/13/10

Name: _____

Period: _____

- 1) The following equation represents the area of a square versus the length of its sides (x is the length of the side in centimeters and $f(x)$ is the area in square centimeters).

$$f(x) = x^2$$

- a. What is the rate of change of the area on the interval $[1,3]$?

- b. What is the rate of change of the area on the interval $[2,5]$?

[illegible]