

AP Calc Warm Up – 9/30/10

Name: _____

Period: _____

- 1) The following table represents the distance a car travels over time. Use the table to answer the following question.

| | | | | | | |
|----------------------|---|---|---|----|----|----|
| Time (in seconds) | 0 | 1 | 2 | 3 | 4 | 5 |
| Distance (in meters) | 0 | 2 | 6 | 12 | 20 | 30 |

What is the average velocity of the car on the interval $[0,5]$? Be sure to include proper units on your answer.

What is the average velocity of the car on the interval $[2,4]$?

Average Rate of Change PROBLEM SOLVER

Name: _____ Date: _____ Period: _____

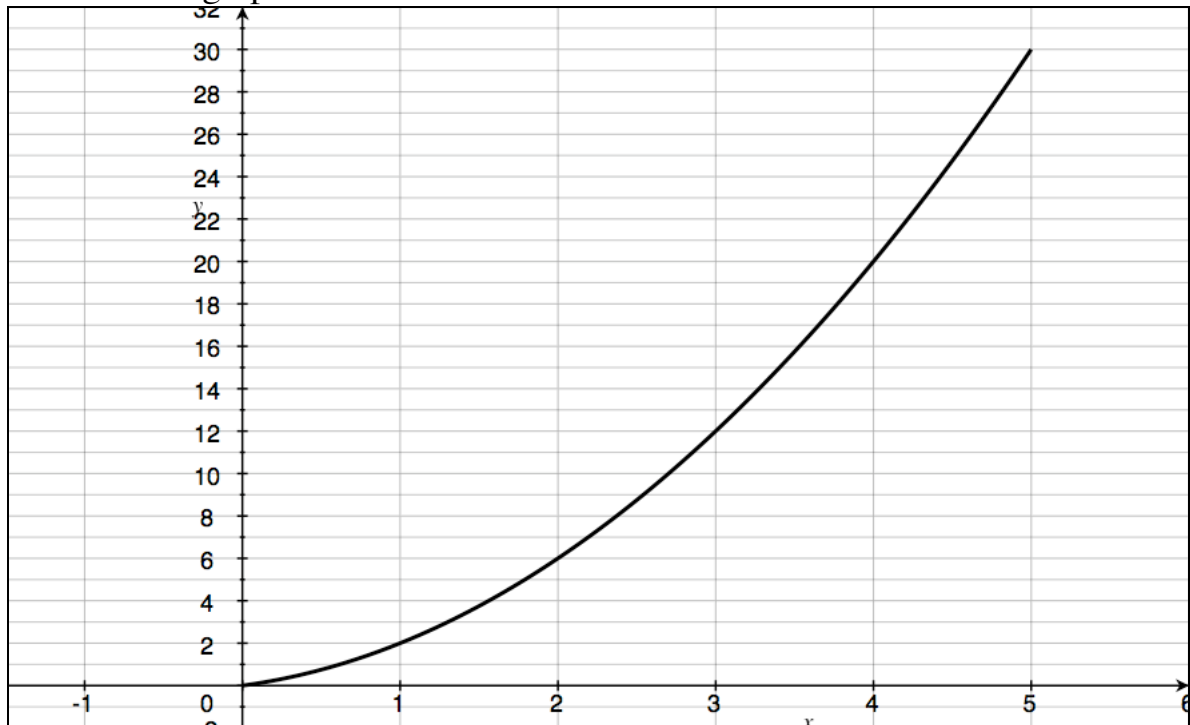
Concept – Students will be able to find average velocity given the equation of a nonlinear function.

Consider the setup from today's warm up:

- 1) The following table represents the distance a car travels over time. Use the table to answer the following question.

| | | | | | | |
|----------------------|---|---|---|----|----|----|
| Time (in seconds) | 0 | 1 | 2 | 3 | 4 | 5 |
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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:

FINDING AVERAGE Velocity WITH AN EQUATION

$f(t) = t^3$ represents the position (measured in meters) of a car at time t , in seconds. Find the average velocity of the car at from $t=2$ to $t=7$.

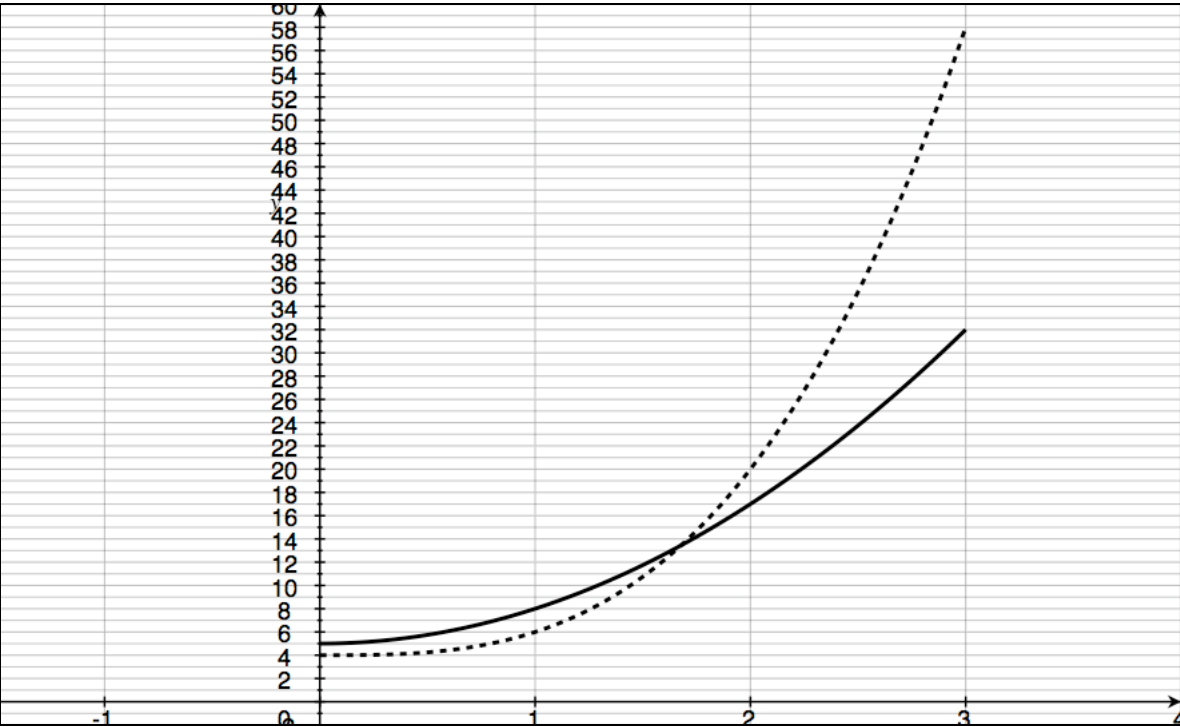
FIND THE FASTEST RATE – The following functions represent the position (measured in meters) of two cyclists. Which cyclist has a greater average velocity for the interval $[0,3]$?

Equation 1

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

Equation 2

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



AP Calc – Exit Slip – 9/30/10

Name: _____

Period: _____

- 1) The following equation represents the height in meters of a watermelon dropped off of the roof of the building.

$$f(x) = -x^2 + 25$$

- a. What is the average velocity of the watermelon on the interval $[1,3]$?

- b. What is the average velocity of the watermelon on the interval $[2,5]$?

PERIOD:

MONTE-SANO

STUDENT #: