

# AP Calc Warm Up – 10/6/10

Name: \_\_\_\_\_ Period: \_\_\_\_\_

1) What is instantaneous velocity?

2) Look at your notes from yesterday and find the limit that tells us the derivative of a function. Copy that limit here.

3) The distance of a car from a stop sign in meters is described by the function  $f(x) = x^2$  where  $x$  represents seconds. Find the INSTANTANEOUS velocity of the car at  $x=4$  using the limit definition of the derivative that you wrote in 2).

# The derivative as function

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Concept – Students will be able find the derivative for x-squared for any x-value.

Let's rewrite the limit definition of the derivative:

Now, consider the function  $f(x) = x^2$

Let's imagine that we will find  $f'(x)$  but we don't know the x-value.

Now, consider the function  $f(x) = 3x + 5$

Let's imagine that we will find  $f'(x)$  but we don't know the x-value.

## AP Calc – Exit Slip – 10/6/10

Name: \_\_\_\_\_ Period: \_\_\_\_\_

1) Find  $f'(x)$  following functions at the given x-value.

a. For  $f(x) = x^2$  find  $f'(-3)$

b. For  $f(x) = 9x - 3$  find  $f'(1)$