

# Unit 5 ~ Day 9

Test Review

# Warm Up:

1. Find  $f'(x)$  at the zeros of the function.

$$f'(x) = 2 \text{ or } -2$$

2. Find  $f'(x)$  at the vertex of the function.

$$f'(x) = 0$$

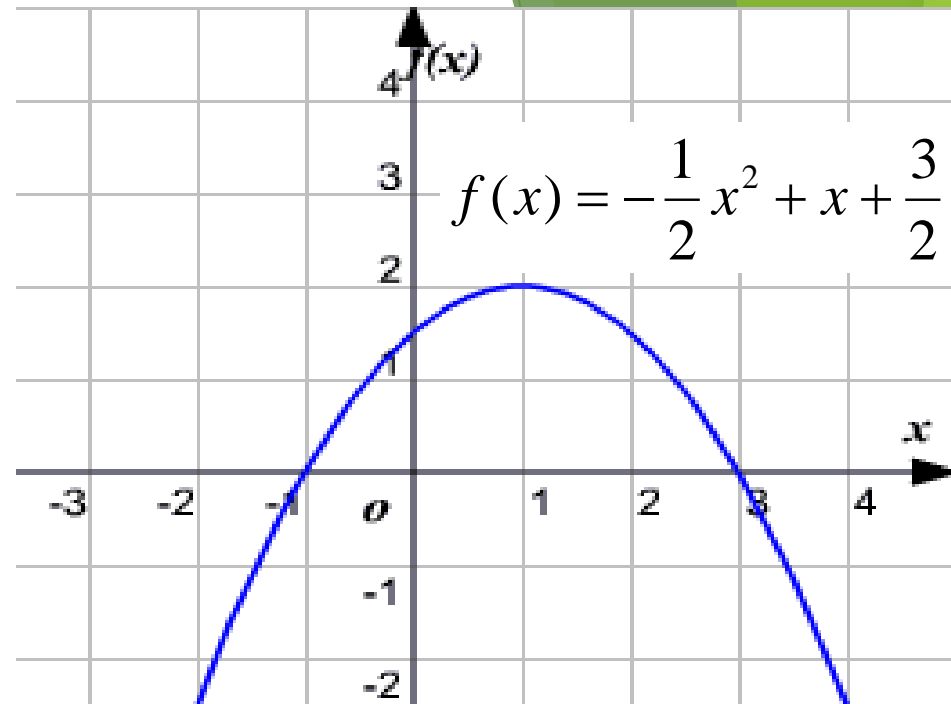
3. An object is shot straight up into the air and its position is represented by the equation  $s(t) = 46t - 1.4t^2$  where  $t$  is in seconds.

- a. Find the velocity and acceleration function.

$$s'(x) = 46 - 2.8t, \quad s''(t) = -2.8$$

- b. Find when the object is at rest ( $v = 0$ ).

$$0 = 46 - 2.8t, \quad t = 16.4 \text{ sec}$$



# Select Application HW Questions

2.  $s(t) = 3t^2 + 2t + 5$

$$s'(t) = 6t + 2$$

$$s'(2) = 6(2) + 2 = 14 \text{ m / sec}$$

3.  $s(t) = -16t^2 - 26t + 220$

$$s'(t) = -32t - 26$$

$$s'(1) = -32(1) - 26 = -58 \text{ ft / sec}$$

# Select Application HW Questions

4.  $s(t) = t^3 - 4t^2 - 3t$       $s(t) = t^3 - 4t^2 - 3t$

$s'(t) = 3t^2 - 8t - 3$       $s'(t) = 3t^2 - 8t - 3$

$0 = 3t^2 - 8t - 3$       $s''(t) = 6t - 8$

$0 = (3t + 1)(t - 3)$       $s''(3) = 6(3) - 8$

$t = -\frac{1}{3}$  or  $t = 3$       $= 10 \text{ ft / sec}^2$

5.  $s(t) = -16t^2 + 256$       $s'(t) = -32t$

$0 = -16t^2 + 256$       $s'(4) = -32(4) = -128$

$t = \pm 4$       $4 \text{ sec s, } -128 \text{ ft / sec}$

Grab a whiteboard, marker,  
and eraser for review!