Math 4 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5-5 Practice 2**  Date \_\_\_\_\_\_\_

Notations: In addition to *f '(x)*, various notations are used to denote the derivative of *y = f(x).* The ones most commonly used are *y* ' and . should be thought of as the derivative of *y* with respect to the variable *x.*

Problems:

 1.  find .

 2.  find .

 3.  find .

 4.  find .

 5.  find .

 6.  find .

 7.  find .

 8.  find .

 9.  find .

 10.  find *y*’*.*

(Write your final answer in radical form.)

 11. 

 12.  find *y*’*.*

 13.

 (Write your final answer in radical form.)

 14. find .

15. A particle moves along the *x*-axis in such a way that its position at time *t* is given by

  for

 a. What direction is the particle moving when *t* = 1?

 b. Find all values of *t* for which the particle is moving to the left.

 c. What is the position of the particle at time *t* = 3?

 d. What is the total distance the particle has traveled from *t* = -1 to *t* = 3?

16. A particle moves along the *x*-axis in such a way that its position at time *t* is given by

 , t > 0

 a. Determine the velocity and acceleration of the particle at time *t*. [find *v(t)* and *a(t)*]

 b. For what values of *t* is the particle at rest?

 c. For what values of *t* does the particle change direction?

 d. What direction is the particle moving when the acceleration is zero?