Name: Date: Period:

Calculus Connection 1

For problems 1-8 find the derivative of *y* with respect to *x* (i.e. ). Complete the assignment on a separate piece of graph paper.

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. For the equation  find
10. the equation of the slope of its tangent line at any point.
11. the equation of the tangent line at point (4,3) using point-slope form.
12. A particle undergoes straight-line motion with its displacement at any time given by the following equation, 
13. Find the times when the particle is motionless.
14. Find the time when the particle is moving to the right.
15. Find the time when the particle is moving to the left.
16. The velocity of a particle moving along the x-axis for  is given by .
17. What is the particle’s acceleration when it first achieves a velocity of zero?
18. What is the particle’s acceleration when it achieves its maximum displacement in the +x-direction?
19. The position of a particle moving along the x-axis is given by .
20. What is the particle’s velocity at times,  and ?
21. What is the particle’s average acceleration from  to ?

# Table of Derivatives

1. 
2. 
3. 
4. 
5. 
6. 
7.  (The Product Rule)
8.  (The Quotient Rule)
9. 
10. 
11. 
12. 
13. 