

## Ch2 Hwk3 Chain Rule

Date \_\_\_\_\_ Period \_\_\_\_\_

**Differentiate each function with respect to  $x$ .**

1)  $y = (-4x^5 + 3)^{-2}$

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

**Differentiate each function with respect to  $x$ . WATCH OUT for rules in addition to the chain rule!**

3)  $y = (4x^3 - 3)(x^4 + 3)^{-5}$

4)  $y = \frac{2x^3 + 3}{(-2x^2 - 5)^5}$

**Differentiate each function with respect to  $x$ .**

5)  $y = \sin 5x^2$

6)  $y = \sec 4x^5$

**Differentiate each function with respect to  $x$ . WATCH OUT for rules in addition to the chain rule!**

7)  $y = \csc 5x^3 \cdot (5x^5 + 2)$

8)  $y = \frac{4x^2 - 5}{\sec 4x^4}$

9) #3,4,7,8 are challenging! Do your best,  
but only #1,2,5,6 will be graded!