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

**5-10 Chain Rule** Date\_\_\_\_\_

You are now a master of the product rule and quotient rule. I’m sure you’ve come to love them like family. You have used the power rule to derive functions such as  by writing this as two functions and applying the product rule. But what if you had something like this:  The product rule won’t be much help for that. This is where the **chain** **rule** steps in. One last time, take a look at the examples below and try to come up with the chain rule from those.



**Example 1:**  **Example 2:**



***Chain Rule:*** If  ­­­­­­­­­­­­­­



**Example 3:**

**Example 4:** 



**Practice! For each function, find the first derivative.**

1.  2. 

3.  4. 

5.  6. 

7.  8. 

9.  10. 