Calculus Section 2.4 Chain Rule Part II, Absolute Value

-Find the derivative using the chain rule in conjunction with the product and quotient rules.
-Find the derivative using the chain rule multiple times.
-Determine the derivative of absolute value functions.

Homework: Page 136 #’s 55, 63, 103, 104, 119-122, 125, 126

**Repeated Application of the Chain Rule**
In order to differentiate certain functions, the chain rule may have to be applied more than one time.

Examples)
1)  2) 

**The Chain Rule Combined with Other Derivative Rules**Examples)
3) 

**Absolute Value Functions**The trick for finding the derivative of an absolute value function is to realize that |u| = $\sqrt{u^{2}}$. Chain rule takes over after you substitute.

Ex) Determine: $\frac{d}{dx}\left[\left|x^{2}-4\right|\right]$

**Derivative of Absolute Value Functions**The general rule for the derivative of an absolute value function is:

 $\frac{d}{dx}\left[\left|u\right|\right]=$

Ex) Write the equation of the line tangent to g(x) = |x3 + 3x| when x = 2.