SUMMARY OF DIFFERENTIATION RULES

1. **Constant Rule**: \( \frac{d}{dx} (c) = 0 \)  
   (c is a constant)

2. **Power Rule**: \( \frac{d}{dx} (x^n) = nx^{n-1} \)  
   (n is a constant)

3. **Constant Multiple Rule**: \( \frac{d}{dx} [c \cdot f(x)] = c \cdot f'(x) \)  
   (c is a constant)

4. **Sum and Difference Rules**: \( \frac{d}{dx} [f(x) \pm g(x)] = f'(x) \pm g'(x) \)

5. **Product Rule**: \( \frac{d}{dx} [f(x) \cdot g(x)] = f(x) \cdot g'(x) + f'(x) \cdot g(x) \)

6. **Quotient Rule**: \( \frac{d}{dx} \left( \frac{f(x)}{g(x)} \right) = \frac{g(x) \cdot f'(x) - f(x) \cdot g'(x)}{[g(x)]^2} \)

7. **Derivatives of Trig Functions**:  
   \( \frac{d}{dx} (\sin x) = \cos x \)  
   \( \frac{d}{dx} (\cos x) = -\sin x \)  
   \( \frac{d}{dx} (\tan x) = \sec^2 x \)  
   \( \frac{d}{dx} (\cot x) = -\csc^2 x \)  
   \( \frac{d}{dx} (\sec x) = \sec x \cdot \tan x \)  
   \( \frac{d}{dx} (\csc x) = -\csc x \cdot \cot x \)