

Name: \_\_\_\_\_  
AP Calc: Chain Rule

Date: \_\_\_\_\_  
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Do Now

1. Find an equation for the normal line to the graph of  $y = \frac{3x+5}{x-1}$  at  $x = 3$ .
2.  $\frac{dy}{dx} \left[ \frac{6}{x^2 + 2x + 1} \right]$
3. Given  $y = (5x^3 + 2)^2$ , find  $\frac{dy}{dx}$ .

**Chain Rule:**

1. If  $y = (3x^2 + 5x)^7$ , find  $y'$ .
2. If  $y = \sqrt{13x^2 - 5x + 8}$ , find  $y'$ .
3. If  $y = \left( \frac{8x - x^6}{x^3} \right)^{\frac{4}{5}}$ , find  $y'$ .

4. Given  $f(x) = (x-1)(x-5)^3$ , find all the values of  $x$  at which the graph of  $f(x)$  have a horizontal tangent line