Calculus **Name: _____**

HW #25: Derivatives w/t Nested Chain, Product, & Quotient Rules (3.5) **Period: _____**

Differentiate each function with respect to *x*.

1. $y=\left(5x^4+1\right)^2$

2. $y=\sqrt[5]{-x^3-4}$

3. $y=\left(4x^5-1\right)\sqrt[3]{x+1}$

4. $y=\sqrt{-x^4-1}\left(-x-2\right)$

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

6. $y=\left(\dfrac{5x^3-3}{-3x^3+1}\right)^3$

7. $f(x)=\left(\dfrac{x^5+4}{x^2-5}\right)^{\frac{1}{5}}$

8. $y=\dfrac{\sqrt[5]{x^2-3}}{-x-5}$