I. First rewrite the function in the form $y = ax^n$. Then find the derivative.

1. $y = \dfrac{5}{x^3}$

2. $y = \sqrt[3]{x^{10}}$

3. $y = \dfrac{1}{5x^3}$

4. $y = \dfrac{7}{6\sqrt[5]{x^8}}$

II. Rewrite if necessary until you have the sum of a few terms, each of the form ax^n. Then find the derivative. (**Do not** use the product or quotient rule for these.)

5. $y = \dfrac{x^3 - 3x^2 + 5x + 2}{x^2}$

6. $y = x^2\left(x^3 + \sqrt{x} - \dfrac{1}{x^9} + 15\right)$

III. Find the derivative. You *will* want the product or quotient rule. **Do not simplify** your answer.

7. $y = \left(3x^2 + 2x - 3\right)\left(5x^7 + 4x^3 - 2x + 1\right)$

8. $y = \dfrac{8x^4 + 17}{7x^3 + 2x - 1}$

IV. Suppose the functions $f(x)$ and $g(x)$ and their derivatives have the following values at $x = 1$:

x	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
1	6	2	–7	5

9. Find $h'(1)$ if $h(x) = f(x)g(x)$

10. Find $h'(1)$ if $h(x) = \dfrac{f(x) + g(x)}{3x + 1}$.