

## Differentiation - Quotient Rule

**Differentiate each function with respect to  $x$ .**

1)  $y = \frac{2}{2x^4 - 5}$

2)  $f(x) = \frac{2}{x^5 - 5}$

3)  $f(x) = \frac{5}{4x^3 + 4}$

4)  $y = \frac{4x^3 - 3x^2}{4x^5 - 4}$

5)  $y = \frac{3x^4 + 2}{3x^3 - 2}$

6)  $y = \frac{4x^5 + 2x^2}{3x^4 + 5}$

7)  $y = \frac{4x^5 + x^2 + 4}{5x^2 - 2}$

8)  $y = \frac{3x^4 + 5x^3 - 5}{2x^4 - 4}$

$$9) y = \frac{x^3 - x^2 - 3}{x^5 + 3}$$

$$10) y = \frac{x^4 + 6}{3 - 4x^{-4}}$$

$$11) y = \frac{4x^4 - 4x^2 + 5}{\frac{5}{2x^3 + 3}}$$

**Critical thinking question:**

- 12) A classmate claims that  $\left(\frac{f}{g}\right)' = \frac{f'}{g'}$  for any functions  $f$  and  $g$ . Show an example that proves your classmate wrong.