Name : _____ Score : _____

Teacher : _____ Date : _____

Quotient Rule

Differentiate each function.

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

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

3) $f(x) = \frac{-5x^3 - 6x}{5x^2 + 2}$

4) $y = \frac{7x^3 - 4x}{x^2 - 4}$

5) $f(x) = \frac{6x^3 + 3x}{3x - 4}$

6) $y = \frac{5x^3 - 3x}{4x + 1}$

7) $f(x) = \frac{-2x - 5}{5x^3 - 7x}$

8) $f(x) = \frac{3x + 1}{2x^2 - 3}$

9) $y = \frac{6x + 2}{6x^2 - 7}$

10) $y = \frac{7x^2 + 5}{4x - 6}$

11) $f(x) = \frac{6x - 1}{5x^3 + x}$

12) $f(x) = \frac{2x^2 - 7}{4x^3 - 6x}$

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Quotient Rule

Differentiate each function.

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

$\frac{dy}{dx} = \frac{-8x^4 - 10x^2 - 6}{4x^6 + 8x^4 + 4x^2}$

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

$\frac{dy}{dx} = \frac{-16x^2 - 48x + 16}{16x^2 + 48x + 36}$

3) $f(x) = \frac{-5x^3 - 6x}{5x^2 + 2}$

$f'(x) = \frac{-25x^4 - 12}{25x^4 + 20x^2 + 4}$

4) $y = \frac{7x^3 - 4x}{x^2 - 4}$

$\frac{dy}{dx} = \frac{7x^4 - 80x^2 + 16}{x^4 - 8x^2 + 16}$

5) $f(x) = \frac{6x^3 + 3x}{3x - 4}$

$f'(x) = \frac{36x^3 - 72x^2 - 12}{9x^2 - 24x + 16}$

6) $y = \frac{5x^3 - 3x}{4x + 1}$

$\frac{dy}{dx} = \frac{40x^3 + 15x^2 - 3}{16x^2 + 8x + 1}$

7) $f(x) = \frac{-2x - 5}{5x^3 - 7x}$

$f'(x) = \frac{20x^3 + 75x^2 - 35}{25x^6 - 70x^4 + 49x^2}$

8) $f(x) = \frac{3x + 1}{2x^2 - 3}$

$f'(x) = \frac{-6x^2 - 4x - 9}{4x^4 - 12x^2 + 9}$

9) $y = \frac{6x + 2}{6x^2 - 7}$

$\frac{dy}{dx} = \frac{-36x^2 - 24x - 42}{36x^4 - 84x^2 + 49}$

10) $y = \frac{7x^2 + 5}{4x - 6}$

$\frac{dy}{dx} = \frac{28x^2 - 84x - 20}{16x^2 - 48x + 36}$

11) $f(x) = \frac{6x - 1}{5x^3 + x}$

$f'(x) = \frac{-60x^3 + 15x^2 + 1}{25x^6 + 10x^4 + x^2}$

12) $f(x) = \frac{2x^2 - 7}{4x^3 - 6x}$

$f'(x) = \frac{-8x^4 + 72x^2 - 42}{16x^6 - 48x^4 + 36x^2}$