Name : _____ Score : _____

Teacher : _____ Date : _____

Quotient Rule

Differentiate each function.

1) $f(x) = \frac{-6x - 7}{x^2 + 1}$

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

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

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

5) $y = \frac{6x^2 - 4}{5x^3 - 7x}$

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

7) $y = \frac{6x^2 + 1}{4x^3 - 3x}$

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

9) $y = \frac{6x^3 - 2x}{2x^2 - 3}$

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

11) $f(x) = \frac{x^2 - 5}{4x - 3}$

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

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Quotient Rule

Differentiate each function.

1) $f(x) = \frac{-6x - 7}{x^2 + 1}$

$f'(x) = \frac{6x^2 + 14x - 6}{x^4 + 2x^2 + 1}$

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

$\frac{dy}{dx} = \frac{-4x^2 - 8x - 4}{16x^4 - 32x^2 + 16}$

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

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

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

$f'(x) = \frac{20x^3 + 30x^2 + 6}{25x^6 + 30x^4 + 9x^2}$

5) $y = \frac{6x^2 - 4}{5x^3 - 7x}$

$\frac{dy}{dx} = \frac{-30x^4 + 18x^2 - 28}{25x^6 - 70x^4 + 49x^2}$

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

$f'(x) = \frac{30x^3 - 45x^2 + 20}{25x^2 - 50x + 25}$

7) $y = \frac{6x^2 + 1}{4x^3 - 3x}$

$\frac{dy}{dx} = \frac{-24x^4 - 30x^2 + 3}{16x^6 - 24x^4 + 9x^2}$

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

$f'(x) = \frac{28x^3 + 42x^2 + 28}{49x^2 + 98x + 49}$

9) $y = \frac{6x^3 - 2x}{2x^2 - 3}$

$\frac{dy}{dx} = \frac{12x^4 - 50x^2 + 6}{4x^4 - 12x^2 + 9}$

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

$f'(x) = \frac{-56x^3 + 42x^2 - 14}{49x^6 - 98x^4 + 49x^2}$

11) $f(x) = \frac{x^2 - 5}{4x - 3}$

$f'(x) = \frac{4x^2 - 6x + 20}{16x^2 - 24x + 9}$

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

$\frac{dy}{dx} = \frac{16x^4 + 40x^2 + 8}{16x^4 + 32x^2 + 16}$

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