

Name : _____

Score : _____

Teacher : _____

Date : _____

Product Rule

Differentiate each function with respect to the given variable, by using the power rule.

1) $y = (5x^2 - 3x + 4)(-3x^2)$

2) $y = (-x^2)(7x^2)$

3) $y = (x^2 - 6x - 5)(-x^2 + x + 2)$

4) $y = (-2x^2 + 2x)(5x^2 + 3x)$

5) $y = (6x^2 - 4x + 4)(-6x^2 - 2x)$

6) $y = (3x^2 + 4x - 1)(-x^2 + 5x)$

7) $y = (x^2)(-7x^2 - 7)$

8) $y = (-4x^2)(5x^2 + 3)$

9) $y = (-4x^2 - 4x - 3)(7x^2)$

10) $y = (2x^2)(-5x^2)$



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Product Rule

Differentiate each function with respect to the given variable, by using the power rule.

11) $y = (5x^2 + 1)(-6x^2 + 7x)$

12) $y = (3x^2 + 2x + 1)(-6x^2 - 7x + 7)$

13) $y = (6x^2 + 3x - 2)(-3x^2 - 3x + 5)$

14) $y = (2x^2 - 6x - 5)(x^2)$

15) $y = (-5x^2)(-x^2 - 4x)$

16) $y = (4x^2 + 7x + 3)(-6x^2 - x - 4)$

17) $y = (-3x^2)(-6x^2)$

18) $y = (-5x^2 - 6)(-6x^2 - 4)$

19) $y = (4x^2 - x)(-6x^2 + 7)$

20) $y = (-6x^2 + 2x + 1)(-5x^2 + 3x)$



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Product Rule

Differentiate each function with respect to the given variable, by using the power rule.

1) $y = (5x^2 - 3x + 4)(-3x^2)$

$$\frac{dy}{dx} = -60x^3 + 27x^2 - 24x$$

2) $y = (-x^2)(7x^2)$

$$\frac{dy}{dx} = -28x^3$$

3) $y = (x^2 - 6x - 5)(-x^2 + x + 2)$

$$\frac{dy}{dx} = -4x^3 + 21x^2 + 2x - 17$$

4) $y = (-2x^2 + 2x)(5x^2 + 3x)$

$$\frac{dy}{dx} = -40x^3 + 12x^2 + 12x$$

5) $y = (6x^2 - 4x + 4)(-6x^2 - 2x)$

$$\frac{dy}{dx} = -144x^3 + 36x^2 - 32x - 8$$

6) $y = (3x^2 + 4x - 1)(-x^2 + 5x)$

$$\frac{dy}{dx} = -12x^3 + 33x^2 + 42x - 5$$

7) $y = (x^2)(-7x^2 - 7)$

$$\frac{dy}{dx} = -28x^3 - 14x$$

8) $y = (-4x^2)(5x^2 + 3)$

$$\frac{dy}{dx} = -80x^3 - 24x$$

9) $y = (-4x^2 - 4x - 3)(7x^2)$

$$\frac{dy}{dx} = -112x^3 - 84x^2 - 42x$$

10) $y = (2x^2)(-5x^2)$

$$\frac{dy}{dx} = -40x^3$$



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Product Rule

Differentiate each function with respect to the given variable, by using the power rule.

11) $y = (5x^2 + 1)(-6x^2 + 7x)$

$$\frac{dy}{dx} = -120x^3 + 105x^2 - 12x + 7$$

12) $y = (3x^2 + 2x + 1)(-6x^2 - 7x + 7)$

$$\frac{dy}{dx} = -72x^3 - 99x^2 + 2x + 7$$

13) $y = (6x^2 + 3x - 2)(-3x^2 - 3x + 5)$

$$\frac{dy}{dx} = -72x^3 - 81x^2 + 54x + 21$$

14) $y = (2x^2 - 6x - 5)(x^2)$

$$\frac{dy}{dx} = 8x^3 - 18x^2 - 10x$$

15) $y = (-5x^2)(-x^2 - 4x)$

$$\frac{dy}{dx} = 20x^3 + 60x^2$$

16) $y = (4x^2 + 7x + 3)(-6x^2 - x - 4)$

$$\frac{dy}{dx} = -96x^3 - 138x^2 - 82x - 31$$

17) $y = (-3x^2)(-6x^2)$

$$\frac{dy}{dx} = 72x^3$$

18) $y = (-5x^2 - 6)(-6x^2 - 4)$

$$\frac{dy}{dx} = 120x^3 + 112x$$

19) $y = (4x^2 - x)(-6x^2 + 7)$

$$\frac{dy}{dx} = -96x^3 + 18x^2 + 56x - 7$$

20) $y = (-6x^2 + 2x + 1)(-5x^2 + 3x)$

$$\frac{dy}{dx} = 120x^3 - 84x^2 + 2x + 3$$

