Name : _____ Score : _____

Teacher : _____ Date : _____

Product Rule

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

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

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

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

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

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

6) $y = (7x^4)(5x^4 + x^3)$

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

8) $y = (5x^3 + x - 7)(-x^3 + 4x)$

9) $y = (5x^4)(2x^4 - 7x^3)$

10) $y = (3x^3)(-6x^5)$

Name : _____ Score : _____

Teacher : _____ Date : _____

Product Rule

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

11) $y = (-4x^4 - 4x^2 - 2x)(-6x^3)$

12) $y = (5x^2)(-2x^3)$

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

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

15) $y = (3x^4)(4x^4 - 4x)$

16) $y = (7x^4 + 2)(-5x^4 - 6)$

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

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

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

20) $y = (5x^4 - 7x^2 + 4x)(3x^4)$

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Teacher : _____ Date : _____

Product Rule

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

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

$\frac{dy}{dx} = -120x^5 + 116x^3 - 3x^2 - 2x$

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

$\frac{dy}{dx} = -30x^9 + 24x^7 + 12x^5 - 8x^3$

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

$\frac{dy}{dx} = -54x^8 - 42x^6 - 90x^5 - 60x^3$

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

$\frac{dy}{dx} = 20x^4$

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

$\frac{dy}{dx} = -112x^7 - 140x^4 + 24x^3 + 12$

6) $y = (7x^4)(5x^4 + x^3)$

$\frac{dy}{dx} = 280x^7 + 49x^6$

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

$\frac{dy}{dx} = -126x^6 + 36x^5 + 48x^3 - 21x^2$

8) $y = (5x^3 + x - 7)(-x^3 + 4x)$

$\frac{dy}{dx} = -30x^5 + 76x^3 + 21x^2 + 8x - 28$

9) $y = (5x^4)(2x^4 - 7x^3)$

$\frac{dy}{dx} = 80x^7 - 245x^6$

10) $y = (3x^3)(-6x^5)$

$\frac{dy}{dx} = -144x^7$

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Teacher : _____ Date : _____

Product Rule

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

11) $y = (-4x^4 - 4x^2 - 2x)(-6x^3)$

$\frac{dy}{dx} = 168x^6 + 120x^4 + 48x^3$

12) $y = (5x^2)(-2x^3)$

$\frac{dy}{dx} = -50x^4$

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

$\frac{dy}{dx} = -72x^8 + 32x^7$

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

$\frac{dy}{dx} = 84x^3 - 51x^2 + 28x - 8$

15) $y = (3x^4)(4x^4 - 4x)$

$\frac{dy}{dx} = 96x^7 - 60x^4$

16) $y = (7x^4 + 2)(-5x^4 - 6)$

$\frac{dy}{dx} = -280x^7 - 208x^3$

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

$\frac{dy}{dx} = -84x^5 + 210x^4 - 112x^3$

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

$\frac{dy}{dx} = 56x^6 + 72x^5 - 10x^4$

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

$\frac{dy}{dx} = -245x^4 - 336x^3 - 129x^2 - 12x$

20) $y = (5x^4 - 7x^2 + 4x)(3x^4)$

$\frac{dy}{dx} = 120x^7 - 126x^5 + 60x^4$