

Power, Constant, and Sum Rules

Differentiate each function with respect to x .

1) $y = 6$

2) $y = -8$

3) $y = 7$

4) $y = x^5$

5) $y = 5x^9$

6) $y = -8x^4$

7) $y = 5x^7 + 4x$

8) $y = x^3 - 8x^2$

9) $y = 4x^6 - 7x^5 - 9x^3$

10) $y = 8x^7 + 5x^5 + 9x^3$

Critical thinking question:

11) a , b , and c are constants. If $y = x^{3b} + 3x^{4c}$, what is $\frac{dy}{dx}$?

Power, Constant, and Sum Rules

Differentiate each function with respect to x .

1) $y = 6$

$$\frac{dy}{dx} = 0$$

2) $y = -8$

$$\frac{dy}{dx} = 0$$

3) $y = 7$

$$\frac{dy}{dx} = 0$$

4) $y = x^5$

$$\frac{dy}{dx} = 5x^4$$

5) $y = 5x^9$

$$\frac{dy}{dx} = 45x^8$$

6) $y = -8x^4$

$$\frac{dy}{dx} = -32x^3$$

7) $y = 5x^7 + 4x$

$$\frac{dy}{dx} = 35x^6 + 4$$

8) $y = x^3 - 8x^2$

$$\frac{dy}{dx} = 3x^2 - 16x$$

9) $y = 4x^6 - 7x^5 - 9x^3$

$$\frac{dy}{dx} = 24x^5 - 35x^4 - 27x^2$$

10) $y = 8x^7 + 5x^5 + 9x^3$

$$\frac{dy}{dx} = 56x^6 + 25x^4 + 27x^2$$

Critical thinking question:

11) a , b , and c are constants. If $y = x^{3b} + 3x^{4c}$, what is $\frac{dy}{dx}$?

$$\frac{dy}{dx} = 3bx^{3b-1} + 12cx^{4c-1}$$