Power Rule

Find the derivative of each function.

Formulas

$\frac{d}{dx}\left[\, x^n \,\right] = nx^{n-1}$

$\frac{d}{dx}\left[\, c \,\right] = 0$

$\frac{d}{dx}\left[\, cf(x) \,\right] = cf'(x)$

$\frac{d}{dx}\left[\, \sqrt{x} \,\right] = \frac{1}{2\sqrt{x}}$

1. $f(x) = 3x^3$

2. $f(x) = x^7$

3. $f(x) = 2x^4 - 8x^2$

4. $f(x) = 6x^5 - 5x$

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

6. $f(x) = 5x^5 - 8x^3 + 7x - 9$

7. $f(x) = 9x^2 - 3x + 3$

8. $f(x) = 5x^7 - 6x^4 + 3x^2 + 2$

9. $f(x) = \frac{7}{x^2}$

10. $f(x) = \frac{4}{x^3} + 4x^2$

11. $f(x) = 4\sqrt{x}$

12. $f(x) = 3\sqrt[3]{x} - 2x^2$

13. $f(x) = x^{3/2}$

14. $f(x) = 4x^{5/2} + 6$

15. $f(x) = \dfrac{5}{x} + \dfrac{9}{x^2}$

16. $f(x) = 5x^4 - \dfrac{9}{x^2} + 1$

17. $f(x) = \dfrac{3x^4}{4} - \dfrac{2x^3}{3} + 9x$

18. $f(x) = 5x^{5/2} - \dfrac{7}{\sqrt{x}}$

19. $f(x) = 4x^{2/3} + \dfrac{9}{x^3} + 3$

20. $f(x) = 5x^5 + 9x^{3/2} - \dfrac{8}{x}$