

Introduction to Calculus

Power Rule for Differentiation

Worksheet 2

Answer Key

Exercise 1

1. $f'(x) = -3.x^{-2}$ that can also be written $f'(x) = -\frac{3}{x^2}$
2. $\frac{dy}{dx} = -2.x^{-3}$ that can also be written $\frac{dy}{dx} = -\frac{2}{x^3}$
3. $f'(x) = -24.x^{-4}$ that can also be written $f'(x) = -\frac{24}{x^4}$
4. $\frac{dy}{dx} = 15.x^{-6}$ that can also be written $\frac{dy}{dx} = \frac{15}{x^6}$
5. $f'(x) = 4.x^{-2}$ that can also be written $f'(x) = \frac{4}{x^2}$
6. $\frac{dy}{dx} = x^{-3}$ that can also be written $\frac{dy}{dx} = \frac{1}{x^3}$
7. $f'(x) = -\frac{3}{2}.x^{-3}$ that can also be written $f'(x) = -\frac{3}{2x^3}$
8. $\frac{dy}{dx} = -18.x^{-7}$ that can also be written $\frac{dy}{dx} = -\frac{18}{x^7}$

Exercise 2

1. $f'(x) = 10 - 21x^{-8}$ that can also be written $f'(x) = 10 - \frac{21}{x^8}$
2. $\frac{dy}{dx} = 25.x^{-6}$ that can also be written $\frac{dy}{dx} = \frac{25}{x^6}$
3. $f'(x) = 2x - x^{-2}$ that can also be written $f'(x) = 2x - \frac{1}{x^2}$
4. $\frac{dy}{dx} = 6x + 2.x^{-3}$ that can also be written $\frac{dy}{dx} = 6x + \frac{2}{x^3}$
5. $f'(x) = 1 + x^{-2}$ that can also be written $f'(x) = 1 + \frac{1}{x^2}$
6. $\frac{dy}{dx} = 5x^4 + 6x + 4x^{-2}$ that can also be written $\frac{dy}{dx} = 5x^4 + 6x + \frac{4}{x^2}$
7. $f'(x) = -3.x^{-4} - 4.x^{-5}$ that can also be written $f'(x) = -\frac{3}{x^4} - \frac{4}{x^5}$
8. $\frac{dy}{dx} = 20x - 4.x^{-5}$ that can also be written $\frac{dy}{dx} = 20x - \frac{4}{x^5}$