

Assignment: Differentiation and Integration

Use the definition of the derivative to find the derivative of each function with respect to x .

1) $f(x) = \sqrt{-2x - 5}$

2) $f(x) = -\frac{1}{2x + 1}$

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

4) $f(x) = \frac{1}{x + 1}$

Evaluate each indefinite integral.

5) $\int (-8x^3 - 6x^2 - 2x) dx$

6) $\int (12x^5 - 20x^4 + 3x^2) dx$

7) $\int (-20x^3 + 3x^2 - 5) dx$

8) $\int (6x^5 + 25x^4 + 5) dx$

Use the definition of the derivative to find the derivative of each function with respect to x .

9) $f(x) = \sqrt{x + 4}$

10) $f(x) = -\frac{2}{x + 3}$

Answers to Assignment: Differentiation and Integration

$$1) f'(x) = -\frac{1}{\sqrt{-2x-5}}$$

$$2) f'(x) = \frac{2}{4x^2 + 4x + 1}$$

$$3) f'(x) = 10x + 5$$

$$4) f'(x) = -\frac{1}{x^2 + 2x + 1}$$

$$5) -2x^4 - 2x^3 - x^2 + C$$

$$6) 2x^6 - 4x^5 + x^3 + C$$

$$7) -5x^4 + x^3 - 5x + C$$

$$8) x^6 + 5x^5 + 5x + C$$

$$9) f'(x) = \frac{1}{2\sqrt{x+4}}$$

$$10) f'(x) = \frac{2}{x^2 + 6x + 9}$$

