

Integration by Substitution

Evaluate each indefinite integral. Use the provided substitution.

1) $\int 20x \sin(5x^2 - 3) dx; u = 5x^2 - 3$

2) $\int 16x^3 \cdot \sec^2(4x^4 - 2) dx; u = 4x^4 - 2$

3) $\int 6e^{3x} \cos(e^{3x} - 5) dx; u = e^{3x} - 5$

4) $\int \frac{50x}{\sec(5x^2 + 5)} dx; u = 5x^2 + 5$

Evaluate each indefinite integral.

5) $\int -36x^3 \sec(3x^4 + 3) \cdot \tan(3x^4 + 3) dx$

6) $\int -9 \sec -3x \cdot \tan -3x \cdot \sec^2(\sec -3x) dx$

7) $\int -\frac{5 \cos(-4 + \ln 4x)}{x} dx$

8) $\int \frac{4x^3}{\csc(x^4 - 1)} dx$

Integration by Substitution

Evaluate each indefinite integral. Use the provided substitution.

1) $\int 20x \sin(5x^2 - 3) dx; u = 5x^2 - 3$

$$-2\cos(5x^2 - 3) + C$$

2) $\int 16x^3 \cdot \sec^2(4x^4 - 2) dx; u = 4x^4 - 2$

$$\tan(4x^4 - 2) + C$$

3) $\int 6e^{3x} \cos(e^{3x} - 5) dx; u = e^{3x} - 5$

$$2\sin(e^{3x} - 5) + C$$

4) $\int \frac{50x}{\sec(5x^2 + 5)} dx; u = 5x^2 + 5$

$$5\sin(5x^2 + 5) + C$$

Evaluate each indefinite integral.

5) $\int -36x^3 \sec(3x^4 + 3) \cdot \tan(3x^4 + 3) dx$

$$-3\sec(3x^4 + 3) + C$$

6) $\int -9\sec -3x \cdot \tan -3x \cdot \sec^2(\sec -3x) dx$

$$3\tan(\sec -3x) + C$$

7) $\int -\frac{5\cos(-4 + \ln 4x)}{x} dx$

$$-5\sin(-4 + \ln 4x) + C$$

8) $\int \frac{4x^3}{\csc(x^4 - 1)} dx$

$$-\cos(x^4 - 1) + C$$