

Integration by Substitution

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{20x^4}{4x^5 + 3} dx; u = 4x^5 + 3$

2) $\int 36x^2 e^{4x^3 + 3} dx; u = 4x^3 + 3$

3) $\int 80x^3 \cdot 3^{5x^4 - 2} dx; u = 5x^4 - 2$

4) $\int \frac{2}{x(-1 + \ln 4x)} dx; u = -1 + \ln 4x$

Evaluate each indefinite integral.

5) $\int \frac{12x^2}{x^3 + 2} dx$

6) $\int \frac{20e^{5x}}{e^{5x} + 3} dx$

7) $\int 10 \sin -2x \cdot e^{\cos -2x} dx$

8) $\int \frac{5e^{-3 + \ln 3x}}{x} dx$

Integration by Substitution

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{20x^4}{4x^5 + 3} dx; u = 4x^5 + 3$

$$\ln |4x^5 + 3| + C$$

2) $\int 36x^2 e^{4x^3 + 3} dx; u = 4x^3 + 3$

$$3e^{4x^3 + 3} + C$$

3) $\int 80x^3 \cdot 3^{5x^4 - 2} dx; u = 5x^4 - 2$

$$\frac{4 \cdot 3^{5x^4 - 2}}{\ln 3} + C$$

4) $\int \frac{2}{x(-1 + \ln 4x)} dx; u = -1 + \ln 4x$

$$2 \ln |-1 + \ln 4x| + C$$

Evaluate each indefinite integral.

5) $\int \frac{12x^2}{x^3 + 2} dx$

$$4 \ln |2x^3 + 4| + C$$

6) $\int \frac{20e^{5x}}{e^{5x} + 3} dx$

$$4 \ln |e^{5x} + 3| + C$$

7) $\int 10 \sin -2x \cdot e^{\cos -2x} dx$

$$5e^{\cos -2x} + C$$

8) $\int \frac{5e^{-3 + \ln 3x}}{x} dx$

$$5e^{-3 + \ln 3x} + C$$