Integration Tables

Learning Objectives

- Use a formula from an integration table to evaluate an integral

Use a formula from an integration table to evaluate an integral

1. Evaluate the following integrals using tables.

    a. $\int x^3 \ln x \, dx$

    b. $\int \frac{\sqrt{4+e^{2x}}}{e^x} \, dx$

    c. $\int \frac{dx}{x^2 \sqrt{4x^2 - 16}}$

d. $\int \dfrac{dx}{(5-x^2)^{3/2}}$

e. $\int 6x\sqrt{3-2x}\,dx$

- You may need to do a substitution to match up your integral to one of the formulas.

ANSWER KEY

1. a. $\frac{x^4}{16}[4\ln x - 1] + C$;

b. $u = e^x, -\frac{\sqrt{4+e^{2x}}}{e^x} + \ln(e^x + \sqrt{4+e^{2x}}) + C$;

c. $u = 2x, \frac{\sqrt{4x^2-16}}{16x} + C$;

d. $-\frac{x}{5\sqrt{5-x^2}} + C$;

e. $6\left[\frac{2}{12}(-2x-6)\sqrt{3-2x}\right] + C$