

Sections 7.1 & 7.2 – Integration Techniques & Integration by Parts

Evaluate the indefinite integrals.

3. $\int x \sec^2(x^2) dx$

5. $\int \frac{\sin 3x}{2 + \cos 3x} dx$

14. $\int \frac{e^{\tan^{-1} x}}{1+x^2} dx$

19. $\int \frac{dx}{\sqrt{x} 3^{\sqrt{x}}}$

23. $\int \frac{e^{-x}}{4 - e^{-2x}} dx$

27. $\int \frac{x}{\csc(x^2)} dx$

Evaluate the integral.

7. $\int x^2 \cos x dx$

11. $\int (\ln x)^2 dx$

17. $\int \tan^{-1}(3x) dx$

19. $\int e^x \sin x dx$

23. $\int x \sec^2 x dx$

25. $\int x^3 e^{x^2} dx$

29. $\int_1^e x^2 \ln x dx$

31. $\int_{-1}^1 \ln(x+2) dx$

55. a. Find the area of the region enclosed by $y = \ln x$, the line $x = e$, and the x -axis.
b. Find the volume of the solid generated when the region in part (a) is revolved about the x -axis.