

Thomas Calculus 14th Edition — Exercises 8.4

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1. $\int \frac{dx}{\sqrt{9+x^2}}$

2. $\int \frac{3dx}{\sqrt{1+9x^2}}$

3. $\int_{-2}^2 \frac{dx}{4+x^2}$

$$4. \int_0^2 \frac{dx}{8+2x^2}$$

$$5. \int_0^{3/2} \frac{dx}{\sqrt{9-x^2}}$$

$$6. \int_0^{1/2\sqrt{2}} \frac{2dx}{\sqrt{1-4x^2}}$$

$$7. \int \sqrt{25 - t^2} dt$$

$$8. \int \sqrt{1 - 9t^2} dt$$

$$9. \int \frac{dx}{\sqrt{4x^2 - 49}}, x > \frac{7}{2}$$

$$10. \int \frac{5dx}{\sqrt{25x^2 - 9}}, \quad x > \frac{3}{5}$$

$$11. \int \frac{\sqrt{y^2 - 49}}{y} dy, \quad y > 7$$

$$12. \int \frac{\sqrt{y^2 - 25}}{y^3} dy, \quad y > 5$$

$$13. \int \frac{dx}{x^2\sqrt{x^2-1}}, x > 1$$

$$14. \int \frac{2dx}{x^3\sqrt{x^2-1}}, x > 1$$

$$15. \int \frac{x}{\sqrt{9-x^2}}dx$$

16. $\int \frac{x^2}{4+x^2} dx$

17. $\int \frac{x^3 dx}{\sqrt{x^2+4}}$

18. $\int \frac{dx}{x^2\sqrt{x^2+1}}$

$$19. \int \frac{8dw}{w^2\sqrt{4-w^2}}$$

$$20. \int \frac{\sqrt{9-w^2}}{w^2}dw$$

$$21. \int \sqrt{\frac{x+1}{1-x}}dx$$

$$22. \int x\sqrt{x^2-4}dx$$

$$23. \int_0^{\sqrt{3}/2} \frac{4x^2 dx}{(1-x^2)^{3/2}}$$

$$24. \int_0^1 \frac{dx}{(4-x^2)^{3/2}}$$

$$25. \int \frac{dx}{(x^2 - 1)^{3/2}}, x > 1$$

$$26. \int \frac{x^2 dx}{(x^2 - 1)^{5/2}}, x > 1$$

$$27. \int \frac{(1 - x^2)^{3/2}}{x^6} dx$$

28. $\int \frac{(1-x^2)^{1/2}}{x^4} dx$

29. $\int \frac{8dx}{(4x^2+1)^2}$

30. $\int \frac{6dt}{(9t^2+1)^2}$

$$31. \int \frac{x^3 dx}{x^2 - 1}$$

$$32. \int \frac{x dx}{25 + 4x^2}$$

$$33. \int \frac{v^2 dv}{(1 - v^2)^{5/2}}$$

$$34. \int \frac{(1-r^2)^{5/2}}{r^8} dr$$

$$35. \int_0^{\ln 4} \frac{e^t dt}{\sqrt{e^{2t} + 9}}$$

$$36. \int_{\ln(3/4)}^{\ln(4/3)} \frac{e^t dt}{(1 + e^{2t})^{3/2}}$$

$$37. \int_{1/12}^{1/4} \frac{2dt}{\sqrt{t} + 4t\sqrt{t}}$$

$$38. \int_1^e \frac{dy}{y\sqrt{1 + (\ln y)^2}}$$

$$39. \int \frac{dx}{x\sqrt{x^2 - 1}}$$

$$40. \int \frac{dx}{1+x^2}$$

$$41. \int \frac{xdx}{\sqrt{x^2-1}}$$

$$42. \int \frac{dx}{\sqrt{1-x^2}}$$

43. $\int \frac{x dx}{\sqrt{1+x^4}}$

44. $\int \frac{\sqrt{1-(\ln x)^2}}{x \ln x} dx$

45. $\int \sqrt{\frac{4-x}{x}} dx$ (Hint: Let $x = u^2$)

46. $\int \sqrt{\frac{x}{1-x^3}} dx$ (Hint: Let $u = x^{3/2}$.)

47. $\int \sqrt{x}\sqrt{1-x} dx$

48. $\int \frac{\sqrt{x-2}}{\sqrt{x-1}} dx$

$$49. \int \sqrt{8 - 2x - x^2} dx$$

$$50. \int \frac{1}{\sqrt{x^2 - 2x + 5}} dx$$

$$51. \int \frac{\sqrt{x^2 + 4x + 3}}{x + 2} dx$$

52. $\int \frac{\sqrt{x^2 + 2x + 2}}{x^2 + 2x + 1} dx$