

Solve the following integrals.

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

15. $\int \frac{dx}{1 - \sin x}$

29. $\int \frac{(2x + 3)dx}{x^2 + 3x + 2}$

2. $\int \frac{dx}{x^2 + 4x - 5}$

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

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

3. $\int x \ln(x) dx$

17. $\int \frac{\sin x dx}{1 + \cos^2 x}$

31. $\int \sin(3x) dx$

4. $\int \sin(\ln x) dx$

18. $\int \sqrt{1 + \sin x} dx$

32. $\int e^x \cos(2x) dx$

5. $\int x e^{x^2} dx$

19. $\int x \sin x dx$

33. $\int (x^2 + 2x + 5) dx$

6. $\int \sin 2x \cos 2x dx$

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

34. $\int \tan^{-1} x dx$

7. $\int \sin^3 x dx$

21. $\int \frac{dx}{x(2 + \ln x)}$

35. $\int \frac{\sin(\ln x)}{x} dx$

8. $\int \sin^2 x dx$

22. $\int \sin \sqrt{x} dx$

36. $\int \frac{\cos(e^x + 1)}{e^{-x}} dx$

9. $\int_1^1 \frac{dx}{x^2}$

23. $\int \tan x dx$

37. $\int x(1 - x)^{1/3} dx$

10. $\int \frac{dx}{e^x + e^{-x}}$

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

38. $\int_{-2}^2 x \cos \frac{\pi x}{2} dx$

11. $\int \frac{\sin x e^{\sec x}}{\cos^2 x} dx$

25. $\int \frac{x dx}{(2x^2 + 1)^2}$

39. $\int_{-2}^2 x \sin \frac{\pi x}{2} dx$

12. $\int \frac{\cos 2t}{1 + \sin 2t} dt$

26. $\int \frac{\cos 2x dx}{\sin 2x}$

40. $\int_{-2}^2 \sin \pi x \sin 2\pi x dx$

13. $\int \frac{e^{2x} dx}{\sqrt[3]{1 + e^x}}$

27. $\int \frac{dx}{x^2 + 9x + 20}$

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

14. $\int e^{\ln \sqrt{x}} dx$

28. $\int \frac{dx}{\cot^2 x}$

42. $\int_{-2}^2 \sin \pi x \sin \pi x dx$