

16 Integrals

1. $\int \frac{dx}{x^2 + 8x + 20}$

7. $\int_0^{\frac{\sqrt{e}}{2}} \frac{dx}{1 + 4x^2}$

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

8. $\int \frac{1}{3x - 4} dx$

3. $\int \frac{3}{4 + 9x^2} dx$

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

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

10. $\int_{\frac{\pi}{2}}^{\pi} \frac{\sin x}{1 + \cos^2 x} dx$

5. $\int \frac{2x - 1}{\sqrt{1 - 4x^2}} dx$

11. $\int \frac{dx}{\sqrt{-x^2 - 6x}}$

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

12. $\int \frac{e^{3x}}{e^{6x} + 16} dx$

$$13. \int \frac{(x-1)}{\sqrt{x^2-2x}} dx$$

$$15. \int_0^2 \frac{dx}{x^2-2x+2}$$

$$14. \int_0^2 \frac{3}{4+x^2} dx$$

$$16. \int \frac{2x-5}{x^2+2x+2} dx$$

17 Answers

$$1. \frac{1}{2} \arctan\left(\frac{x+4}{2}\right) + c$$

$$2. \ln(x^2+9) - \arctan\frac{x}{3} + c$$

$$3. \frac{1}{2} \arctan\frac{3x}{2} + c$$

$$4. -2\ln(x^2+4) + \frac{1}{2}x^2 + c$$

$$5. -\frac{1}{2} \arcsin 2x - \frac{1}{2} \sqrt{1-4x^2} + c$$

$$6. \frac{\pi}{6}$$

$$7. \frac{\pi}{6}$$

$$8. \frac{1}{3} \ln|3x-4| + c$$

$$9. 2\arcsin\sqrt{x} + c$$

$$10. \frac{\pi}{4}$$

$$11. \arcsin\frac{x+3}{3} + c$$

$$12. \frac{1}{12} \arctan\frac{e^{3x}}{4} + c$$

$$13. \sqrt{x^2-2x} + c$$

$$14. \frac{3\pi}{8}$$

$$15. \frac{\pi}{2}$$

$$16. \ln|x^2+2x+2| - 7\arctan(x+1) + c$$