

1. Find the indefinite integral.

$$\int \sqrt{25 - 64x^2} dx$$

2. Find the indefinite integral.

$$\int x\sqrt{4 - 25x^2} dx$$

3. Find the indefinite integral.

$$\int \frac{1}{x\sqrt{16 + 25x^2}} dx$$

4. Find the indefinite integral.

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

5. Find the definite integral.

$$\int_3^4 \frac{\sqrt{x^2 - 9}}{x^2} dx$$

6. Find the indefinite integral.

$$\int \frac{x - 28}{x^2 - x - 6} dx$$

7. Find the indefinite integral.

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

8. Find the indefinite integral.

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

9. Find the indefinite integral.

$$\int \frac{2x^3 - 5x^2 + 4x - 4}{x^2 - x} dx$$

10. Find the indefinite integral.

$$\int \frac{4x-2}{3(x-1)^2} dx$$

11. Use integration tables to evaluate the integral.

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

12. Use integration tables to evaluate the integral.

$$\int \frac{x}{\sqrt{2+3x}} dx$$

13. Use integration tables to evaluate the integral.

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

14. Use integration tables to evaluate the integral.

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

15. Use integration tables to evaluate the integral.

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

16. Use integration tables to evaluate the integral.

$$\int \frac{3}{2x\sqrt{9x^2 - 1}} dx, \quad x > 1/3$$

17. Use integration tables to evaluate the integral.

$$\int \frac{1}{\sin \pi x \cos \pi x} dx$$

18. Use integration tables to evaluate the integral.

$$\int \frac{1}{1 + \tan \pi x} dx$$

19. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow 1} \frac{(\ln x)^2}{x - 1}$$

20. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow 0} \frac{\sin \pi x}{\sin 2\pi x}$$

21. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow \infty} \frac{e^{2x}}{x^2}$$

22. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow \infty} xe^{-x^2}$$

23. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow \infty} (\ln x)^{2/x}$$

24. Use L'Hôpital's Rule to evaluate the limit.

$$\lim_{x \rightarrow 1^+} \left(\frac{2}{\ln x} - \frac{2}{x-1} \right)$$