

1.- Calcular las siguientes integrales, que contienen productos y potencias de funciones trigonométricas.

1. $\int \sin^3(x) dx$

20. $\int \sin^2(3x) \cos^2(3x) dx$

39. $\int \tan^4(x) dx$

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

21. $\int \sin^3\left(\frac{x}{2}\right) \cos^2\left(\frac{x}{2}\right) dx$

40. $\int \tan^6(3x) dx$

3. $\int \sin^4(x) dx$

22. $\int \cos(4x) \cos(3x) dx$

41. $\int \cot^2(4x) dx$

4. $\int \cos^5(x) dx$

23. $\int \cos(7x) \cos(2x) dx$

42. $\int \cot^3(x) dx$

5. $\int \cos^6(x) dx$

24. $\int \cos(\pi x) \cos(2\pi x) dx$

43. $\int \sec^4(x) dx$

6. $\int \cos^2\left(\frac{x}{2}\right) dx$

25. $\int \cos(x) \cos(3x) dx$

44. $\int \sec^5(x) dx$

7. $\int \sin^4(x) \cos(x) dx$

26. $\int \sin(2x) \cos(4x) dx$

45. $\int \sec^6(2x) dx$

8. $\int \cos^5(x) \sin(x) dx$

27. $\int \sin(4x) \cos(2x) dx$

46. $\int \csc^3(x) dx$

9. $\int \sin^3(x) \cos^3(x) dx$

28. $\int \sin(9x) \cos(6x) dx$

47. $\int \csc^4(x) dx$

10. $\int \sin^3(x) \cos^2(x) dx$

29. $\int \sin(3\pi x) \cos(2\pi x) dx$

48. $\int \csc^5(x) dx$

11. $\int \sin^4(x) \cos^7(x) dx$

30. $\int \sin(3x) \cos(5x) dx$

49. $\int \tan^2(x) \sec(x) dx$

12. $\int \sin^2(x) \cos^3(x) dx$

31. $\int \sin(3x) \sin(5x) dx$

50. $\int \tan^3(x) \sec(x) dx$

13. $\int \cos^2(x) \sin^4(x) dx$

32. $\int \sin(4x) \sin(2x) dx$

51. $\int \tan^2(x) \sec^4(x) dx$

14. $\int \sin^4(x) \cos(x) dx$

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

52. $\int \tan^4(x) \sec^6(x) dx$

15. $\int \sin^5(x) \cos(x) dx$

34. $\int \sin(7x) \sin(4x) dx$

53. $\int \tan^6(x) \sec^4(x) dx$

16. $\int \sin^5(x) \cos^2(x) dx$

35. $\int \sin(2\pi x) \sin(\pi x) dx$

54. $\int \tan^5(x) \sec^3(x) dx$

17. $\int \cos^3(4x) \sin(4x) dx$

36. $\int \tan^2(5x) dx$

55. $\int \cot^2(3x) \csc^4(3x) dx$

18. $\int \cos^6\left(\frac{x}{2}\right) \sin\left(\frac{x}{2}\right) dx$

37. $\int \tan^5(3x) dx$

19. $\int \sin^2(2x) \cos^4(2x) dx$

38. $\int \tan^3(x) dx$

2.- Calcular las siguientes integrales.

$$\begin{array}{lll}
 \text{(a)} \int \frac{\sec^2(x) \cot(x)}{\sec(x)} dx & \text{(d)} \int \frac{\cos(2x)}{\sec(2x) + \tan(2x)} dx & \text{(g)} \int \frac{\tan(x) \cos(x) \cot(x) \sec^2(x)}{\sec^2(x) \csc(x)} dx \\
 \text{(b)} \int \sec^3(2x) \cot(2x) dx & \text{(e)} \int \tan(x) \sqrt{\sec(x)} dx & \text{(h)} \int \left(\frac{\sec(x)}{\tan(x)} \right)^4 dx \\
 \text{(c)} \int \frac{\tan(4x)}{\csc(4x) + \cot(4x)} dx & \text{(f)} \int \frac{1}{\sqrt{1 - \sec(2x)}} dx & \text{(i)} \int \frac{\cot^3(x)}{\csc(x)} dx
 \end{array}$$

3.- Haciendo uso de alguna sustitución trigonométrica, calcular las siguientes integrales.

$$\begin{array}{lll}
 1. \int \sqrt{1 - x^2} dx & 16. \int x^3 \sqrt{1 - x^2} dx & 31. \int \frac{x^2}{\sqrt{x^2 - 4}} dx \\
 2. \int \sqrt{2 - x^2} dx & 17. \int x^3 \sqrt{16 - x^2} dx & 32. \int \frac{x^2}{\sqrt{x^2 - 9}} dx \\
 3. \int \sqrt{4 - x^2} dx & 18. \int x^3 \sqrt{1 + x^2} dx & 33. \int \frac{3x^2}{\sqrt{x^2 - 25}} dx \\
 4. \int \sqrt{16 - x^2} dx & 19. \int x^3 \sqrt{x^2 + 9} dx & 34. \int \frac{1}{\sqrt{x^2 - a^2}} dx \\
 5. \int \sqrt{9 - 4x^2} dx & 20. \int x^3 \sqrt{x^2 - 1} dx & 35. \int \frac{1}{x^2 \sqrt{x^2 - 7}} dx \\
 6. \int \sqrt{3 - x^2} dx & 21. \int x^3 \sqrt{x^2 - 25} dx & 36. \int \frac{x^2}{(x^2 + 4)^2} dx \\
 7. \int \sqrt{4 + x^2} dx & 22. \int \sqrt{3x^2} \sqrt{1 - 4x^2} dx & 37. \int \frac{1}{(4 + x^2)^{3/2}} dx \\
 8. \int \sqrt{4 + 9x^2} dx & 23. \int \frac{1}{x^2 \sqrt{4 - x^2}} dx & 38. \int \frac{1}{(4x^2 - 9)^{3/2}} dx \\
 9. \int \sqrt{x^2 + 16} dx & 24. \int \frac{\sqrt{4 - x^2}}{x^2} dx & 39. \int \frac{1}{x^4 \sqrt{16 + x^2}} dx \\
 10. \int \sqrt{4x^2 + 36} dx & 25. \int \frac{1}{x \sqrt{x^2 + 4}} dx & 40. \int \frac{2}{x \sqrt{x^4 + 25}} dx \\
 11. \int \sqrt{x^2 - 1} dx & 26. \int \frac{x^2}{\sqrt{x^2 + 6}} dx & 41. \int \frac{x^3}{(25 - x^2)^2} dx \\
 12. \int \sqrt{x^2 - 25} dx & 27. \int \frac{1}{x \sqrt{25 - x^2}} dx & 42. \int \frac{1}{\sqrt{4x - x^2}} dx \\
 13. \int \sqrt{4x^2 - 36} dx & 28. \int \frac{\sqrt{25 - x^2}}{x} dx & 43. \int \frac{1}{\sqrt{4x + x^2}} dx \\
 14. \int x^2 \sqrt{1 - x^2} dx & 29. \int \frac{\sqrt{16 - x^2}}{2x} dx & 44. \int \frac{1}{x \sqrt{x^2 - 4}} dx \\
 15. \int x^2 \sqrt{4 - x^2} dx & 30. \int \frac{\sqrt{9 - x^2}}{x} dx &
 \end{array}$$