**Integration          Worksheet**

1. $\int (4-5x)^6 \, dx$

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

3. $\int \dfrac{dx}{\sqrt{x}\left(1-2\sqrt{x}\right)}$

4. $\int \dfrac{3x}{x-5} \, dx$

5. $\int \sqrt{x-x^3}\left(9x^2-3\right) dx$

6. $\int \dfrac{6e^{-4x}}{2+e^{-4x}} \, dx$

7. $\int \left(1-3x^2\right)^2 \, dx$

8. $\int \left(x^\pi + e^\pi\right) dx$

9. $\int \dfrac{x^2+x-1}{x^2+1} \, dx$

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

11. $\int \dfrac{dx}{2+9x^2}$

12. $\int \dfrac{1-\ln x}{x} \, dx$

13. $\int x\left(\sin 2\pi x^2\right) dx$

14. $\int \dfrac{x+2}{\sqrt{-x^2-4x}} \, dx$

15. $\int \dfrac{\cos\left(\dfrac{1}{x}\right)}{x^2} \, dx$

16. $\int x e^{-x} \, dx$

17. $\int \dfrac{e^{\frac{1}{x}}}{x^2} \, dx$

18. $\int e^x \sin x \, dx$

19. $\int x^3 e^{x^4} \, dx$

20. $\int (\ln x)^2 \, dx$

21. $\int arccos\, x \, dx$

22. $\int \dfrac{\ln x}{x^2} \, dx$

23. $\int_0^1 \ln\left(1+x^2\right) dx$

24. $\int x^3 \cos 2x \, dx$

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

26. Solve: $\dfrac{dy}{dx} = \ln x$

27. Solve: $(\cos y)y' = 2x$

28. $\int \sin^3 x \, dx$

29. $\int \sec^2 (3x) \, dx$

30. $\int \cos^2 \dfrac{\pi x}{2} \, dx$

31. $\int \tan\theta \sec^6 \theta \, d\theta$

32. $\int (\sin x + \cos x)^2 \, dx$

33. $\int \sec^5 x \tan x \, dx$

34. $\int x \sin^2 x \, dx$

35. $\int \sin^3 x \cos^4 x \, dx$

36. $\int_{\frac{\pi}{8}}^{\frac{\pi}{4}} \sin^2 2\theta \, d\theta$

37. $\int_0^{\frac{\pi}{4}} \tan^3 x \, dx$

38. $\int \dfrac{x-3}{x^2+4x+3} \, dx$

39. $\int \dfrac{1-x}{2x^2+x} \, dx$

40. $\displaystyle\int \frac{x^2+1}{x^3+3x-4}dx$

41. $\displaystyle\int 2x\sqrt{2x-3}\,dx$

42. $\displaystyle\int x^2 \ln x\,dx$

43. $\displaystyle\int \cos^3 2\theta\,d\theta$

44. $\displaystyle\int \frac{2x}{\sqrt{9-3x^2}}dx$

45. $\displaystyle\int e^{\sqrt{x}}\,dx$

46. $\displaystyle\int \frac{1+\sin\left(e^{-2x}\right)}{e^{2x}}dx$

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

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

49. $\displaystyle\int \frac{t}{\sqrt{1-t^4}}dt$

50. $\displaystyle\int \frac{1}{x^{\frac{2}{3}}\left(1+x^{\frac{1}{3}}\right)}dx$

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

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

53. $\displaystyle\int \frac{t^2}{\left(1-t^2\right)^{\frac{3}{2}}}dt$

54. $\displaystyle\int \sin^3 x\cos^2 x\,dx$

55. $\displaystyle\int \frac{2x-3}{\sqrt{9-x^2}}dx$

56. $\displaystyle\int \ln x^3\,dx$

57. $\displaystyle\int \frac{2}{\sqrt{3+2x-x^2}}dx$

58. $\displaystyle\int \frac{t^2-3}{-t^3+9t-1}dt$

59. $\displaystyle\int \tan^2(2x)\,dx$

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

61. $\displaystyle\int \frac{2e^{\frac{1}{x}}}{x^2}dx$

62. $\displaystyle\int \frac{1}{x^2\sqrt{25-x^2}}dx$

63. $\displaystyle\int \frac{3e^x-3e^{-x}}{\left(e^x+e^{-x}\right)^2}dx$

64. $\displaystyle\int \frac{x+1}{x^3+x}dx$

65. $\displaystyle\int \left(\frac{4}{x^2}-\frac{3}{x^3}\right)dx$

66. $\displaystyle\int \tan^4 x\sec^2 x\,dx$

67. $\displaystyle\int \frac{x^3}{x^2+1}dx$

68. $\displaystyle\int \frac{x}{x^4+9}dx$

69. $\displaystyle\int \cos\theta\sin(\sin\theta)\,d\theta$

70. $\displaystyle\int \frac{2(\ln x)^2}{x}dx$

71. $\displaystyle\int \frac{x+1}{\left(3-2x-x^2\right)^3}dx$

72. $\displaystyle\int (2x-1)e^{x^2-x}\,dx$

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

74. $\displaystyle\int \frac{2t-1}{t^2+9}dt$

75. $\displaystyle\int \ln\left(e^{x^5}\right)dx$

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

77. $\displaystyle\int \frac{(x+1)^3}{x^2}dx$

78. $\displaystyle\int x\sqrt{4-x^2}\,dx$

79. $\displaystyle\int_0^{\frac{\sqrt{3}}{2}} \frac{4}{1+x^2}dx$

80. $\displaystyle\int \frac{3x^4+3x^3-5x^2+x-1}{x^2+x-2}dx$