Home works

Evaluating Definite Integrals

Evaluate the integrals in Exercises 45–70.

45. $\int_{-1}^{1} (3x^2 - 4x + 7)\, dx$

46. $\int_{0}^{1} (8s^3 - 12s^2 + 5)\, ds$

47. $\int_{1}^{2} \frac{4}{v^2}\, dv$

48. $\int_{1}^{27} x^{-4/3}\, dx$

49. $\int_{1}^{4} \frac{dt}{t\sqrt{t}}$

50. $\int_{1}^{4} \frac{(1 + \sqrt{u})^{1/2}}{\sqrt{u}}\, du$

51. $\int_{0}^{1} \frac{36\, dx}{(2x + 1)^3}$

52. $\int_{0}^{1} \frac{dr}{\sqrt[3]{(7 - 5r)^2}}$

53. $\int_{1/8}^{1} x^{-1/3}(1 - x^{2/3})^{3/2}\, dx$

54. $\int_{0}^{1/2} x^3(1 + 9x^4)^{-3/2}\, dx$

55. $\int_{0}^{\pi} \sin^2 5r\, dr$

56. $\int_{0}^{\pi/4} \cos^2\left(4t - \frac{\pi}{4}\right) dt$

57. $\int_{0}^{\pi/3} \sec^2 \theta\, d\theta$

58. $\int_{\pi/4}^{3\pi/4} \csc^2 x\, dx$

59. $\int_{\pi}^{3\pi} \cot^2 \frac{x}{6}\, dx$

60. $\int_{0}^{\pi} \tan^2 \frac{\theta}{3}\, d\theta$

61. $\int_{-\pi/3}^{0} \sec x \tan x\, dx$

62. $\int_{\pi/4}^{3\pi/4} \csc z \cot z\, dz$

63. $\int_{0}^{\pi/2} 5(\sin x)^{3/2} \cos x\, dx$

64. $\int_{-1}^{1} 2x \sin(1 - x^2)\, dx$

65. $\int_{-\pi/2}^{\pi/2} 15 \sin^4 3x \cos 3x\, dx$

66. $\int_{0}^{2\pi/3} \cos^{-4}\left(\frac{x}{2}\right) \sin\left(\frac{x}{2}\right) dx$

67. $\int_{0}^{\pi/2} \frac{3 \sin x \cos x}{\sqrt{1 + 3\sin^2 x}}\, dx$

68. $\int_{0}^{\pi/4} \frac{\sec^2 x}{(1 + 7\tan x)^{2/3}}\, dx$

69. $\int_{0}^{\pi/3} \frac{\tan \theta}{\sqrt{2 \sec \theta}}\, d\theta$

70. $\int_{\pi^2/36}^{\pi^2/4} \frac{\cos\sqrt{t}}{\sqrt{t}\sin\sqrt{t}}\, dt$