Gandaki University

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Bachelor of Information Technology (BIT)

BSM 101

Exercise on Definite Integration

Evaluate the definite integrals in Problems 1-26.

1. $\int_0^3 4xdx$ 2. $\int_0^1 8xdx$ 3. $\int_2^4 dx$ 4. $\int_1^5 2dy$ 5. $\int_2^4 x^3dx$ 6. $\int_0^5 x^2dx$
7. $\int_0^5 4\sqrt[3]{x^2}dx$ 8. $\int_2^4 3\sqrt{x}dx$ 9. $\int_2^4 \left(4x^3-6x^2-5x\right)dx$ 10. $\int_0^2 \left(x^4-5x^3+2x\right)$
11. $\int_3^4 (x-4)^9dx$ 12. $\int_{-1}^0 (x+2)^{13}dx$ 13. $\int_2^4 \left(x^2+2\right)^3 xdx$ 14. $\int_0^3 \left(2x-x^2\right)^4 (1-x$
15. $\int_{-1}^2 \left(x^3-3x^2\right)^3\left(x^2-2x\right)dx$ 16. $\int_0^4 \left(3x^2-2\right)^4 xdx$ 17. $\int_0^4 \sqrt{4x+9}dx$
18. $\int_0^2 \sqrt[3]{2x^3-8}x^2dx$ 19. $\int_1^3 \frac{3}{y^2}dy$ 20. $\int_1^2 \frac{5}{z^3}dz$ 21. $\int_0^1 e^{3x}dx$
22. $\int_0^2 e^{4x-3}dx$ 23. $\int_1^e \frac{4}{z}dz$ 24. $\int_1^{5e} 3y^{-1}dy$ 25. $\int_0^2 8x^2e^{-x^3}dx$ 26. $\int_0^1 \frac{3x^3dx}{4x^4+9}$

27. Find the area between the curve $y=-x^2+3x-2$ and the x-axis from $x=1$ to $x=2$.
28. Find the area between the curve $y=x^2+3x+2$ and the x-axis from $x=-1$ to $x=3$.
29. Find the area between the curve $y=xe^{x^2}$ and the x-axis from $x=1$ to $x=3$.
30. Find the area between the curve $y=e^{-x}$ and the x-axis from $x=-1$ to $x=1$

31. $\int_1^{e^2} \frac{(\ln x)^2}{x}dx$
32. $\int_e^{e^2} \frac{1}{x\ln x}dx$
33. $\int_{1/3}^{1/2} \frac{e^{1/x}}{x^2}dx$
34. Evaluate $\int_4^4 \sqrt{x^2-2}dx$.
35. Evaluate $\int_2^2 \left(x^3+4x\right)^{-6}dx$