

$$1. \int_{-1}^2 (x^3 - 2x) dx$$

$$2. \int_1^4 (5 - 2t + 3t^2) dt$$

$$3. \int_1^9 \sqrt{x} dx$$

$$4. \int_{\frac{\pi}{6}}^{\pi} \sin \theta d\theta$$

$$5. \int_0^1 (u+2)(u-3) du$$

$$6. \int_0^4 (4-t)\sqrt{t} dt$$

$$7. \int_1^9 \frac{x-1}{\sqrt{x}} dx$$

$$8. \int_0^{\frac{\pi}{4}} \sec^2 t dt$$

$$9. \int_0^{\frac{\pi}{4}} \sec \theta \tan \theta d\theta$$

$$10. \int_1^2 (1+2y)^2 dy$$

$$11. \int_0^3 (2\sin x - e^x) dx$$

$$12. \int_1^2 \frac{v^3 + 3v^6}{v^4} dv$$

$$13. \int_0^1 (x^e + e^x) dx$$

$$14. \int_{\frac{1}{\sqrt{3}}}^{\sqrt{3}} \frac{8}{1+x^2} dx$$

$$15. \int_{-1}^1 e^{u+1} du$$

$$16. \int_0^{\pi} f(x) dx \quad \text{where } f(x) = \begin{cases} \sin x & \text{if } 0 \leq x < \frac{\pi}{2} \\ \cos x & \text{if } \frac{\pi}{2} \leq x < \pi \end{cases}$$

Answers:

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|-------------------|--------------------|--|-----------------------------|--|----------------------|-------------------|-------|
| 1) $\frac{3}{4}$ | 2) 63 | 3) $\frac{52}{3}$ | 4) $1 + \frac{\sqrt{3}}{2}$ | 5) $-\frac{37}{6}$ | 6) $\frac{128}{15}$ | 7) $\frac{40}{3}$ | 8) 1 |
| 9) $\sqrt{2} - 1$ | 10) $\frac{49}{3}$ | 11) $-2\cos(3) - e^3 + 3$
≈ -15.106 | 12) $\ln(2) + 7$ | 13) $\frac{1}{e+1} + e - 1$
≈ 1.987 | 14) $\frac{8\pi}{6}$ | 15) $e^2 - 1$ | 16) 0 |