

Evaluate the following integrals.

1. $\int_e^{e^2} \frac{1}{x(\ln x)^2} dx$

2. $\int 2x^3 e^{x^2} dx$

3. $\int x\sqrt{2x+3} dx$

4. $\int \frac{1}{x}(x+1)^2 dx$

5. $\int_0^1 e^{-x}(e^{-x}+1)^{1/2} dx$

6. $\int \frac{\ln(3x)}{x} dx$

7. $\int (x^2+5)\ln(x^3) dx$

8. $\int \left(x^{2/3} - \frac{1}{x} + 5 + \sqrt{x} - e^{-x/4}\right) dx$

9. $\int \sqrt{x} \left(x^2 - \frac{1}{x}\right) dx$

10. $\int_1^4 \frac{(\sqrt{x}-1)^{3/2}}{\sqrt{x}} dx$

11. $\int_1^2 \frac{x^2}{(x^3+1)^4} dx$

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

13. $\int (x+1)(2x^2+\sqrt{x}) dx$

14. $\int te^{1-t} dt$

15. $\int (5+3x+x^2)e^{-x/2} dx$

16. $\int (3x+1)\sqrt{3x^2+2x+5} dx$

17. $\int (\ln x)^2 dx$

18. $\int_0^1 2te^{t^2-1} dt$

19. $\int_{-1}^1 \frac{3x+6}{(x^2+4x+5)^2} dx$

20. $\int_0^1 \frac{x+2}{e^{3x}} dx$