INTEGRATION BY PARTS - WEEK 9

NUTM Nexus Writing Team

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1 Examples and Class Work

1. Solve $\displaystyle\int xe^x \, \mathrm{d}x$.

2. Solve $\displaystyle\int xe^{2x} \, \mathrm{d}x$.

3. Solve $\displaystyle\int x^2 \ln x \, \mathrm{d}x$.

4. Solve $\displaystyle\int x^2 e^x \, \mathrm{d}x$.

2 Practice Problems

Evaluate the following indefinite integrals using Integration by Parts:

5. $\displaystyle\int xe^{3x} \, \mathrm{d}x$

6. $\displaystyle\int x^2 e^{3x} \, \mathrm{d}x$

7. $\displaystyle\int x \ln(2x) \, \mathrm{d}x$

8. $\displaystyle\int \ln(4x) \, \mathrm{d}x$

9. $\displaystyle\int xe^{-3x} \, \mathrm{d}x$

10. $\displaystyle\int x^2 e^{-x} \, \mathrm{d}x$

11. $\displaystyle\int x^2 e^{-2x} \, \mathrm{d}x$

12. $\displaystyle\int x^2 e^{2x} \, \mathrm{d}x$

13. $\displaystyle\int \ln(2x) \, \mathrm{d}x$

14. $\displaystyle\int \ln(x^2)\ \mathrm{d}x$

15. $\displaystyle\int x\ln x\ \mathrm{d}x$

16. $\displaystyle\int x^3 \ln x\ \mathrm{d}x$

17. $\displaystyle\int xe^x\ \mathrm{d}x$

18. $\displaystyle\int xe^{3x}\ \mathrm{d}x$

19. $\displaystyle\int x^2 e^{-x}\ \mathrm{d}x$

20. $\displaystyle\int (x^2 - 2x + 1)e^{2x}\ \mathrm{d}x$

21. $\displaystyle\int x^3 e^x\ \mathrm{d}x$

22. $\displaystyle\int p^4 e^{-p}\ \mathrm{d}p$

23. $\displaystyle\int (x^2 - 5x)e^x\ \mathrm{d}x$

24. $\displaystyle\int (r^2 + r + 1)e^r\ \mathrm{d}r$

25. $\displaystyle\int x^5 e^x\ \mathrm{d}x$

26. $\displaystyle\int t^2 e^{4t}\ \mathrm{d}t$