

Review of Integration Techniques – HW Assignment

Evaluate the following integrals:

1. $\int x \sin(x^2) dx.$ (substitution)
2. $\int e^x \cot(e^x) dx.$ (substitution)
3. $\int \sin^{-1} x dx.$ (by parts)
4. $\int e^{\sqrt{x}} dx.$ (substitution then by parts)
5. $\int \tan^4 \theta d\theta.$ (trig integral)
6. $\int \frac{dx}{(4+x^2)^{3/2}}.$ (trig substitution)
7. $\int \frac{x+3}{x^2+2x+5} dx.$ (partial fractions)
8. $\int \frac{x^2+3}{x^2+5x+6} dx.$ (partial fractions)
9. $\int \frac{\sin x}{\cos^2 x + 5 \cos x + 6} dx.$ (substitution then partial fractions)
10. $\int \frac{dx}{x^2(x^2+1)}.$ (partial fractions)
11. $\int \frac{dx}{x+5\sqrt{x}+6}.$ 🤔