

Math 1B §5.7 Homework Problems

1. Simplify the class of antiderivatives for the indefinite integral $\int_0^{\pi/2} \cos^5 x \, dx$.
2. Simplify the class of antiderivatives for the indefinite integral $\int_0^{\pi/2} \cos^2 x \sin^2 x \, dx$.
3. Use the substitution $u = \tan x$ to simplify $\int \tan^2 x \sec^4 x \, dx$.
4. Use the substitution $x = \sec x$ to simplify $\int \frac{\sqrt{x^2-1}}{x^4} \, dx$.
5. Simplify $\int_0^{2\sqrt{3}} \frac{x^3}{\sqrt{16-x^2}} \, dx$
6. Evaluate $\int_0^1 \frac{x-1}{x^2+3x+2} \, dx$.
7. Simplify $\int \frac{x^2+2x-1}{x^3-x} \, dx$
8. Simplify $\int \frac{2x^2+5}{(x^2+1)(x^2+4)} \, dx$
9. Simplify $\int \frac{x^3+x^2-12x+1}{x^2+x-12} \, dx$
10. Simplify $\int \frac{x^3}{x^2+1} \, dx$
11. Simplify $\int \frac{x}{\sqrt{3-2x-x^2}} \, dx$.