

Homework Set 9

(sect 6.3: Partial Fractions)

Write out the partial fraction decomposition for the given fractions. Do not integrate. For extra credit, find the values of the coefficients on the smaller fractions.

1. $\frac{2x}{x^3+x^2}$

2. $\frac{x^2+2x+1}{x^3+x}$

Evaluate the given integrals.

3. $\int \frac{x}{x-6} dx$

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

5. $\int_0^1 \frac{2x+3}{(x+1)^2} dx$

6. $\int \frac{x^2+2x-1}{x^3-x} dx$

7. $\int \frac{5}{(x+1)(x^2+4)} dx$

8. $\int \frac{x}{x^4-1} dx$

9. $\int \frac{2x-1}{x^2-4x+13} dx$

10. $\int \ln(x^2 - 2x + 5) dx$