

MA114 Summer II 2017
Worksheet 2 - Partial Fractions
6/12/17

1. Write out the general form of the partial fraction decomposition but do not solve for the coefficients.

a) $\frac{1}{x^2 + 3x + 2}$

b) $\frac{2x + 1}{x^2 + 4x + 4}$

c) $\frac{x}{(x^2 + 1)(x + 1)(x + 2)}$

2. Compute the following integrals.

a) $\int \frac{x - 9}{(x + 5)(x - 2)} dx,$

c) $\int \frac{1}{x(x^2 + 1)} dx,$

b) $\int \frac{x^3 + 4}{x^2 + 4} dx,$

d) $\int \frac{x - 1}{(x + 3)(x^2 - 1)} dx.$

3. Compute

$$\int \frac{1}{\sqrt{x} - \sqrt[3]{x}}$$

by first making the substitution $u = \sqrt[6]{x}$.