MA114 Summer II 2018
Worksheet 2 - Partial Fractions
6/11/18

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

a) $\dfrac{1}{x^2+3x+2}$ b) $\dfrac{2x+1}{x^2+4x+4}$ c) $\dfrac{x}{(x^2+1)(x+1)(x+2)}$

2. Compute the following integrals.

a) $\displaystyle\int \frac{x-9}{(x+5)(x-2)}\,dx,$ c) $\displaystyle\int \frac{1}{x(x^2+1)}\,dx,$

b) $\displaystyle\int \frac{x^3+4}{x^2+4}\,dx,$ d) $\displaystyle\int \frac{x-1}{(x+3)(x^2-1)}\,dx.$

3. Compute

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

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