

## Assignment 5: Part 2

1. Write out the appropriate form of the partial fraction decomposition of the given expressions  
Do not evaluate the coefficients.

(a)

$$\frac{x+1}{2x^2-11x+15}$$

(b)

$$\frac{1}{x^4(x-1)(x^2+4)^3(x^2+x+1)^2}$$

2. Determine the partial fraction decomposition of

$$\frac{x^4+7x^3+8x^2-3}{x^3+6x^2}.$$

### Optional problems

Determine the partial fraction decomposition of the following rational functions.

1.  $\frac{6x-1}{2x^4-x^3}$

2.  $\frac{x+3}{x^4+9x^2}$

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

4.  $\frac{x^2}{(x^2+4)}$

5.  $\frac{4x}{(x^2+1)(x^2+2x+3)}$