

1. **6.2** Add the rational expressions. Express your final answer in lowest terms.

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

2. **6.3** Simplify the complex fraction.

a. 
$$\frac{2x^{-3} + 2y^{-2}}{5x^{-2} - 3y^{-1}}$$

3. **6.4** Use synthetic division to divide.  $\frac{5x^5 - 24x^4 + 14x^3 + 11x + 7}{x + 2}$  Express your final result in the form  $\text{Dividend} = \text{Divisor} \bullet \text{Quotient} + \text{Remainder}$

4. **6.4** Bonus If  $f(x) = 5x^5 - 24x^4 + 14x^3 + 11x + 7$ , what is  $f(-2)$ , according to your previous work? Full credit only if you use your previous work.

5. **6.4** Divide.  $(4x^5 - 2x^4 + 5x^2 - 11x - 3) \div (x^2 + 2)$ . Express your final answer in the form  
Dividend = Divisor • Quotient + Remainder

6. **6.5 Bonus** Solve  $\frac{7}{x+5} + \frac{8}{x+2} = \frac{9}{x+1}$