

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

$$\frac{x-1}{x^2-4x-5} + \frac{2x-3}{x^2+3x+2}$$

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

a.
$$\frac{\frac{2}{x+2} + \frac{6}{x+7}}{\frac{4x+13}{x^2+9x+14}}$$

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

3. **6.4** Divide. $(2x^5 - 6x^4 + x^3 - 4x + 3) \div (x^2 - 3)$. Express your final answer in the form
Dividend = Divisor • Quotient + Remainder

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

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

6. **6.5** Solve $\frac{49x - 203}{x^2 - 5x - 6} = \frac{35}{x + 2}$