Polynomial Division

In your notebook, you must complete at least two using the box/area method, two using long division, and two using synthetic division. You may use any of the three methods for the remaining four problems.

1. \( \frac{x^2 - x + 6}{x - 3} \)
2. \( \frac{x^2 - 4}{x - 2} \)
3. \( \frac{x^2 + 2x + 1}{x + 1} \)
4. \( \frac{3x^5 - 12x^4 - 13x^2 + 26x}{3x^3 + x - 9} \)
5. \( \frac{x^3 - 4x^2 + x + 6}{x - 2} \)
6. \( \frac{x^3 - 3x^2 - 11x + 5}{x^2 + 2x - 1} \)
7. \( \frac{2x^3 - 6x^2 + 7x - 6}{2x^2 + 2x + 3} \)
8. \( \frac{x^4 + 2x^2 + 8x + 6}{x^2 + 2x + 1} \)
9. \( \frac{x^5 + 1}{x + 1} \)
10. \( \frac{x^4 + 4x^3 + 6x^2 + 4x + 1}{x + 1} \)