Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Perform the operation $(5x^3 - 4x^2 + 3x - 7) \div (x^2 + 1)$ using long division and write your answer in the form
$$\text{Divident} = \text{Quotient} \cdot \text{Divisor} + \text{Remainder}.$$

2. Perform the operation $(5x^3 + 2x - 11) \div (x - 3)$ using synthetic division. Write your answer in the form
$$\frac{\text{Divident}}{\text{Divisor}} = \text{Quotient} + \frac{\text{Remainder}}{\text{Divisor}}.$$