Solving Polynomial Equations Worksheet 1

In the problems below, you are given one or two solutions to the equation leaving a quadratic. Find all remaining solutions by factoring, using the quadratic formula or by completing the square.

1. \( x^3 + 3x^2 - 3x - 9 = 0 \); \( x = -3 \)

5. \( 3x^3 + 2x^2 - 7x + 2 = 0 \); \( x = 1 \)

2. \( 2x^3 + 9x^2 + 7x - 6 = 0 \); \( x = -2 \)

6. \( x^4 + x^3 - 9x^2 - 3x + 18 = 0 \); \( x = 2, -3 \)

3. \( x^3 - 11x + 20 = 0 \); \( x = -4 \)

7. \( x^4 - x^3 - 5x^2 + 3x + 2 = 0 \); \( x = 1, -2 \)

4. \( 2x^3 + x^2 - 8x + 3 = 0 \); \( x = \frac{3}{2} \)

8. \( 2x^4 - 11x^3 + 4x^2 + 29x + 12 = 0 \); \( x = -1, 3 \)