Names: _____ _____ _____

Activity #7: Polynomials II **College Algebra**

1. The polynomial
$$p(x) = x^5 - 4x^4 - 10x^3 + 40x^2 + 9x - 36$$
has roots at $1; -1; 3; -3$. Completely factor $p(x)$ as a product of linear factors.

2. The polynomial
$$p(x) = x^5 - 6x^4 + 14x^3 - 16x^2 + 9x - 2$$
has roots at 1 and 2. Find the multiplicity of these roots.

3. Find the list of candidate roots of the polynomial

$$p(x) = 3x^3 - 4x^2 + 5x + 4$$

given by the Rational Root Theorem. **Do not factor.**

4. Factor the following polynomial.

$$p(x) = 4x^4 - 16x^3 + 17x^2 + x - 6$$

5. Factor the following polynomial.

$$p(x) = 6x^5 + 7x^4 - 16x^3 - 9x^2 + 8x + 4$$