

Names: _____

Activity #9: Polynomials

College Algebra

1. Construct a polynomial of degree 3 which has roots at -2, 2, and 1.

2. Construct a polynomial having roots at -2, 5, and 1.

3. Construct a polynomial having roots at 3, 1, and $1/2$.

4. The polynomial

$$p(x) = x^5 - x^4 - 13x^3 + 13x^2 + 36x - 36$$

has roots at 1; 2; 3; -3. Completely factor $p(x)$ as a product of linear factors.

5. The polynomial

$$p(x) = 2x^5 - 9x^4 - 5x^3 + 40x^2 - 12x - 16$$

has roots at 1; 4; 2. Completely factor $p(x)$ as a product of linear factors.

6. The polynomial

$$p(x) = x^7 - 9x^6 + 34x^5 - 70x^4 + 85x^3 - 61x^2 + 24x - 4$$

has roots at 1 and 2. Find the multiplicity of these roots.

7. The polynomial

$$p(x) = x^7 - 11x^6 + 51x^5 - 129x^4 + 192x^3 - 168x^2 + 80x - 16$$

has roots at 1 and 2. Find the multiplicity of these roots.