Activity #10: The Rational Root Theorem (Solutions)   **College Algebra**

1. Find the list of candidate roots of the polynomial

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

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

2. Find the list of candidate roots of the polynomial

$$p(x) = 5x^3 - 3x^2 + 6x + 9$$

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

3. Factor the following polynomial.

$$p(x) = 4x^4 - 12x^3 + 3x^2 + 13x - 6$$

   Solution:

4. Factor the following polynomial.

$$p(x) = 4x^4 + 8x^3 - 7x^2 - 17x - 6$$

   Solution:

5. Factor the following polynomial.

$$p(x) = 6x^5 - 31x^4 + 60x^3 - 55x^2 + 24x - 4$$

   Solution: Use the Rational Root Theorem to find a list of candidate roots, and then use Synthetic Division (with trial and error) to factor.