1. Factor the polynomial below completely, knowing that $x-3$ is a factor. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 4x^4 - 45x^2 + 81$$

2. Factor the polynomial below completely. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 9x^3 + 9x^2 - 46x + 24$$

3. Factor the polynomial below completely, knowing that $x-3$ is a factor. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 10x^4 - 59x^3 + 37x^2 + 174x - 72$$

4. Perform the division below. Write the resulting quotient in the form $ax^2 + bx + c$ and remainder as $r$.

$$\frac{12x^3 - 39x^2 + 29}{x - 3}$$

5. Perform the division below. Write the resulting quotient in the form $ax^2 + bx + c$ and remainder as $r$.

$$\frac{9x^3 - 24x^2 - 95x - 45}{x - 5}$$

6. Perform the division below. Write the resulting quotient in the form $ax^2 + bx + c$ and remainder as $r$.

$$\frac{8x^3 - 62x + 27}{x + 3}$$

7. What are the *possible Rational* roots of the polynomial below?

$$f(x) = 5x^2 + 7x + 2$$

8. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 2x^2 + 6x + 3$$

9. Perform the division below. Write the resulting quotient in the form $ax^2 + bx + c$ and remainder as $r$.

$$\frac{12x^3 + 40x^2 - 92x + 45}{x + 5}$$

10. Factor the polynomial below completely. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 9x^3 - 27x^2 - 4x + 12$$