Activity #11: Quadratic Roots   **College Algebra**

1. Find all solutions of the equation

$$x^5 - 3x^4 - 3x^3 + 9x^2 + 2x - 6 = 0$$

given that $\sqrt{2}$ is a root.

2. Find all solutions of the equation

$$x^6 - 2x^5 + 2x^4 - 2x^3 - 11x^2 + 24x - 12 = 0$$

given that $2i$ is a root.

3. Find all solutions of the equation

$$x^9 - 2x^8 - 16x^7 + 32x^6 + 86x^5 - 172x^4 - 176x^3 + 352x^2 + 105x - 210 = 0$$

given that $\sqrt{7}$ and $\sqrt{5}$ are roots.