1. Solve each of the following equations by factoring.
   a. $x^3 + 3x^2 - x - 3 = 0$
   b. $4x^2 - 6x - 10 = x^2 - 9x + 8$

2. Solve the following by extracting square roots. Simplify.
   a. $(x + 13)^2 = 25$

3. Use the Quadratic Formula to solve. Simplify.
   a. $x^2 + 14x + 44 = 0$
   b. $25x^2 - 20x + 3 = 0$
4. Solve the following by completing the square.

\[ x^2 + 8x + 14 = 0 \]

5. Use the method of completing the square to find the vertex form for the equation of the parabola.

\[ f(x) = 2x^2 + 8x + 7 \]

6. Write the vertex form of the equation of the parabola whose vertex is \((5,12)\) and that passes through the point \((7,15)\).

7. **Without using a calculator:** Identify the vertex, axis of symmetry, \(x\)-intercepts, and maximum or minimum of the following parabola. Label your answers.

\[ f(x) = \frac{1}{4}x^2 - 2x - 12 \]