1. For each of the following, state whether the polynomial is a “difference of squares”, a “perfect square trinomial,” or neither.
   a. \(x^2 - 16\).
   b. \(x^2 - 4x + 4\).
   c. \(x^2 + 6x + 9\).
   d. \(x^2 + 10x + 16\).
   e. \(x^2 + 25\).
   f. \(x^2 + 14x + 49\).
   g. \(x^2 - 2x + 1\).
   h. \(x^2 - 1\).
   i. \(x^2 + 3x - 18\).
   j. \(x^2 + 5x + 4\).

2. Factor all of the polynomials in Problem 1, except for the one that doesn’t factor. Say “doesn’t factor” for that one.

3. Use factoring to solve the following equations.
   a. \((x - 3)(x - 2) = 0\).
   b. \(x^2 - 5x + 6 = 0\).
   c. \(x^2 + 2x + 1 = 0\).
   d. \((x + 1)^2(x - 1)(x + 2) = 0\).

Answers: 1: a) difference of squares. b) perfect square trinomial. c) perfect square trinomial. d) neither.
   e) neither. f) perfect square trinomial. g) perfect square trinomial. h) difference of squares. i) neither. j) neither.

2: a) \((x - 4)(x + 4)\). b) \((x - 2)^2\). c) \((x + 3)^2\). d) \((x + 2)(x + 8)\). e) does not factor. f) \((x + 7)^2\). g) \((x - 1)^2\).
   h) \((x - 1)(x + 1)\). i) \((x - 3)(x + 6)\). j) \((x + 1)(x + 4)\).

3: a) \(x = 3, 2\). b) \((x - 2)(x - 3) = 0, x = 2, 3\). c) \((x + 1)^2 = 0, x = -1 (or x = -1, -1)\). d) \(x = -1, 1, -2 (or x = -1, -1, 1, -2)\).