Completing the Square

This is another method to solve quadratic equations. If the quadratic cannot be factored we have to have something else that will allow us to solve the equation. There are 2 such methods—completing the square and the quadratic formula. Completing the Square is also used for other applications.

Process:

1. Write the equation in standard form: $ax^2 + bx + c = 0$
2. Move c to the left hand side of the equation.
$$x^2 + bx + \underline{\quad} = -c + \underline{\quad}$$
3. If a is NOT = 1, divide all terms by a. Reduce any fractions.
4. Take $\frac{1}{2}$ of the coefficient of x.
5. Square this and add to both sides of the equation.
6. Re-write left hand side as a squared binomial.
7. Solve the equation by the extraction of roots method.

1. $x^2 + 8x - 11 = 0$ 2. $x^2 - 6x + 18 = 0$ 3. $x^2 + 3x - 13 = 0$

4. $2x^2 - 2x + 10 = 0$ 5. $3x^2 + 5x + 7 = 0$