Solving Quadratic Equations by Factoring and the Quadratic Formula

Worked example / complete source key

Solve x^2 - 4x - 5 = 0 by factoring, and verify the solutions.

Answer: The solutions are x = 5 and x = -1.

Reason: Find two numbers that multiply to -5 and add to -4: -5 and 1. Factor as (x - 5)(x + 1) = 0. Set each factor to zero: x - 5 = 0 gives x = 5; x + 1 = 0 gives x = -1. Check: for x = 5, 25 - 20 - 5 = 0; for x = -1, 1 + 4 - 5 = 0.