Solve by the Quadratic Formula

STEPS:

1. Write in standard form.
2. Identify a, b, and c.
3. Substitute the numbers into the formula below.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

4. Simplify and solve.

Solve the equation by the quadratic formula.

$x^2 - 8x + 12 = 0$

a = 1 b = -8 c = 12

$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(12)}}{2(1)}$

$x = \frac{8 \pm 4}{2} = \frac{12}{2} = \boxed{6 = x}$ $\frac{4}{2} = \boxed{2 = x}$

$x^2 - 6x - 14 = 0$

a = 1 b = -6 c = -14

$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-14)}}{2(1)}$

$x = \frac{6 \pm 2\sqrt{23}}{2}$ or $x = 3 \pm \sqrt{23}$

$x^2 - 8x + 25 = 0$

a = 1 b = -8 c = 25

$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(25)}}{2(1)}$

$x = \frac{8 \pm 6i}{2}$ $\boxed{x = 4 \pm 3i}$

$x^2 - 2x + 3 = 0$

a = 1 b = -2 c = 3

$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(3)}}{2(1)}$

$x = \frac{2 \pm \sqrt{-8}}{2}$ $x = \frac{2 \pm 2i\sqrt{2}}{2}$ $\boxed{x = 1 \pm i\sqrt{2}}$

$x^2 - 14x = 4$ $x^2 - 14x - 4 = 0$

a = 1 b = -14 c = -4

$x = \frac{-(-14) \pm \sqrt{(-14)^2 - 4(1)(-4)}}{2(1)}$

$x = \frac{14 \pm 2\sqrt{53}}{2} = 7 \pm \sqrt{53}$

$x^2 - 10x = -49$ $x^2 - 10x + 49 = 0$

a = 1 b = -10 c = 49

$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(1)(49)}}{2(1)}$

$x = \frac{10 \pm \sqrt{-96}}{2} = \frac{10 \pm 4i\sqrt{6}}{2} = \boxed{5 \pm 2i\sqrt{6}}$

$2x^2 + 6x - 5 = 0$

a = 2 b = 6 c = -5

$x = \frac{-(6) \pm \sqrt{(6)^2 - 4(2)(-5)}}{2(2)}$

$x = \frac{-6 \pm 2\sqrt{19}}{4} = \frac{-3 \pm \sqrt{19}}{2}$

$3x^2 - 16x + 10 = 0$

a = 3 b = -16 c = 10

$x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(3)(10)}}{2(3)}$

$x = \frac{16 \pm 2\sqrt{34}}{6} = \boxed{\frac{8 \pm \sqrt{34}}{3}}$