Example 3 Use a System to Solve a Quadratic Equation

Use a system of equations to solve $x^2 - 2x + 6 = 4x + 1$.

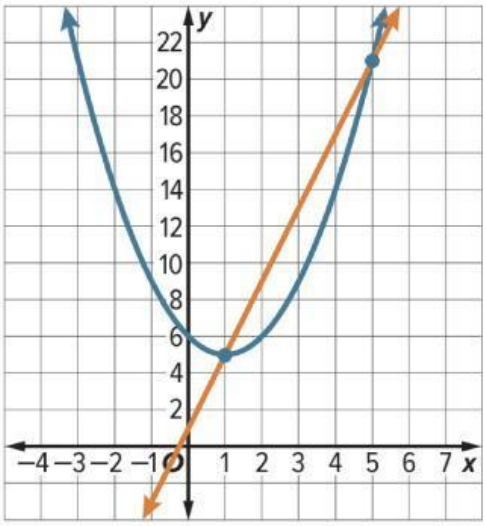
Step 1 Create a system of equations.

$y = x^2 - 2x + 6$ (1)

$y = 4x + 1$ (2)

Step 2 Graph the system.

The functions appear to intersect at (1, 5) and (5, 21), so the solutions of $x^2 - 2x + 6 = 4x + 1$ are



x =____

and

x = ____

Different method

$x^2 - 2x + 6 = 4x + 1$	original equation
$x^2 - 2x + 6 - \square - \square = 0$	move everything to the left side
$x^2 - \square + \square = 0$	simplify
$(x - \square)(x - \square) = 0$	solve by factoring
$x = \square \; and \; x = \square$	solve x for each bracket