

Example 2 Solve a Linear-Quadratic System by Using Elimination

Solve the system of equations.

$$x^2 = y + 5 \quad (1)$$

$$-x + y = 7 \quad (2)$$

Step 1 Solve so that the y s are on the same side of each equation.

$$-x + y = 7$$

Equation (2)

$$-x = \boxed{} + 7$$

Subtract y from each side.

Step 2 Add the equations.

$$x^2 = y + 5$$

$$(+)\ -x = -y + 7$$

$$\hline \boxed{} - x = \boxed{}$$

Step 3 Solve for the remaining variable.

$$x^2 - x = 12$$

Sum of Equations (1) and (2)

$$x^2 - x - \boxed{} = 0$$

Subtract 12 from each side.

$$(x - 4)(x + \boxed{}) = 0$$

Factor.

$$x = \boxed{} \text{ or } x = \boxed{}$$

Zero Product Property

Step 4 Solve for the other variable.

$$-x + y = 7$$

Equation (2)

$$-\boxed{} + y = 7$$

Substitute x .

$$y = \boxed{}$$

Simplify.

$$-x + y = 7$$

$$-(\boxed{}) + y = 7$$

$$y = \boxed{}$$

The two solutions of the system are $(\boxed{}, 11)$ and $(\boxed{}, 4)$.