

Solving Systems of Quadratic Equations

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Solve the system:

$$y = x^2 + 5x - 3$$

$$y = 3x + 5$$

Solve the system:

$$y = x^2 + 5x - 3$$

$$y = 3x + 5$$

$$x^2 + 5x - 3 = 3x + 5$$

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

$$(x - 2)(x + 4) = 0$$

$$x = 2, -4$$

$$\text{If } x = 2,$$

$$y = 3(2) + 5$$

$$y = 11$$

$$\text{If } x = -4,$$

$$y = 3(-4) + 5$$

$$y = -7$$

(2, 11)

(-4, -7)

Solve the system:

$$y = x^2 - 6x - 1$$

$$y = -10x - 5$$

Solve the system:

$$y = x^2 - 6x - 1$$

$$y = -10x - 5$$

$$x^2 - 6x - 1 = -10x - 5$$

$$x^2 + 4x + 4 = 0$$

$$(x + 2)^2 = 0$$

$$x = -2$$

If $x = -2$,

$$y = -10(-2) - 5$$

$$y = 15$$

(-2, 15)

Solve the system:

$$y = x^2 + 9x - 5$$

$$y = 6x - 17$$

Solve the system:

$$y = x^2 + 9x - 5$$

$$y = 6x - 17$$

$$x^2 + 9x - 5 = 6x - 17$$

$$x^2 + 3x + 12 = 0$$

The left side of this equation
has a negative discriminant, so ...

**There is no
solution.**

Solve the system:

$$y = 4x^2 + 7x + 2$$

$$y = -5x - 7$$

Solve the system:

$$y = 4x^2 + 7x + 2$$

$$y = -5x - 7$$

$$4x^2 + 7x + 2 = -5x - 7$$

$$4x^2 + 12x + 9 = 0$$

$$(2x + 3)^2 = 0$$

$$x = -3/2$$

If $x = -3/2$,

$$y = -5(-3/2) - 7$$

$$y = 1/2$$

$(-3/2, 1/2)$

Solve the system:

$$y = 6x^2 + 5x - 3$$

$$y = 6x + 9$$

Solve the system:

$$y = 6x^2 + 5x - 3$$

$$y = 6x + 9$$

$$6x^2 + 5x - 3 = 6x + 9$$

$$6x^2 - x - 12 = 0$$

$$(2x - 3)(3x + 4) = 0$$

$$x = 3/2, -4/3$$

$$\text{If } x = 3/2,$$

$$y = 6(3/2) + 9$$

$$y = 18$$

$$\text{If } x = -4/3,$$

$$y = 6(-4/3) + 9$$

$$y = 1$$

$$(3/2, 18)$$

$$(-4/3, 1)$$