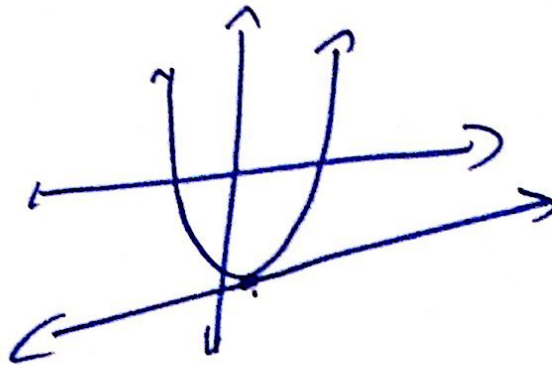


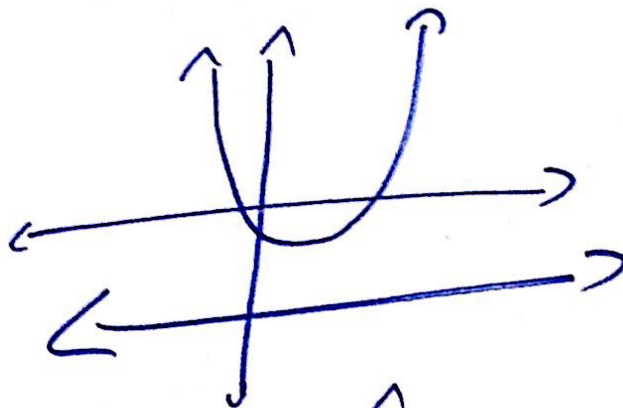
MATH: Solving Systems Graphically (2 or more)

Quadratic systems can have 1, none, or 2 solutions.

1 solution

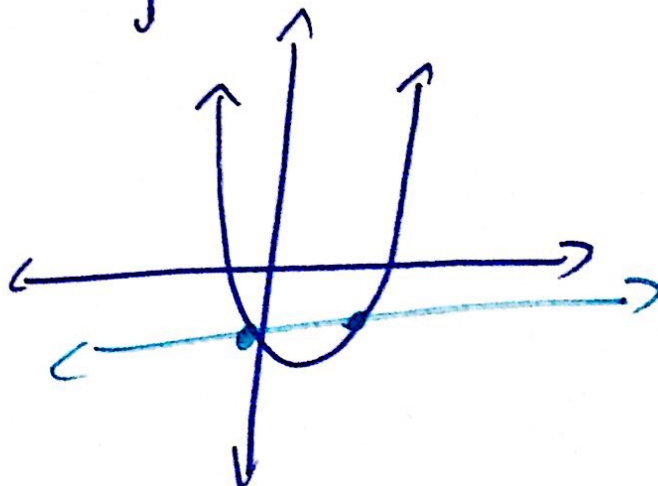


None



Solution =
intersection

2 solutions



Algebraically

ex: $y = x^2 + 4x + 3$ (quad)

$y = 2x + 6$ (line)

① set eqn. equal to each other

$$x^2 + 4x + 3 = 2x + 6$$

② Make right side equal 0.

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

③ solve by factoring or Quad. Form.

$$(x+3)(x-1) = 0$$

$$x+3=0 \quad x-1=0$$

$$x = -3, 1$$

④ substitute x values into equation to get y values.

$$x = -3 \Rightarrow y = 2(-3) + 6 = 0$$
$$= -6 + 6$$

$$x = 1 \Rightarrow y = 2(1) + 6 = 8$$

⑤ Answer as points $(-3, 0)$ $(1, 8)$

ex 2: $y = x^2 - 5x + 7$ (quad)
 $y = 2x + 1$ (line)

① $x^2 - 5x + 7 = 2x + 1$

② $x^2 - 7x + 6 = 0$

③ $(x-1)(x-6) = 0$

$x-1=0$ $x-6=0$

$x=1$ $x=6$

④ $x=1 \Rightarrow y = 2(1) + 1 = 3$

$x=6 \Rightarrow y = 2(6) + 1 = 13$

⑤ $(6, 13)$ $(1, 3)$