

Learning Goal:

By the end of today, I will be able to solve quadratic problems using a graphing approach.

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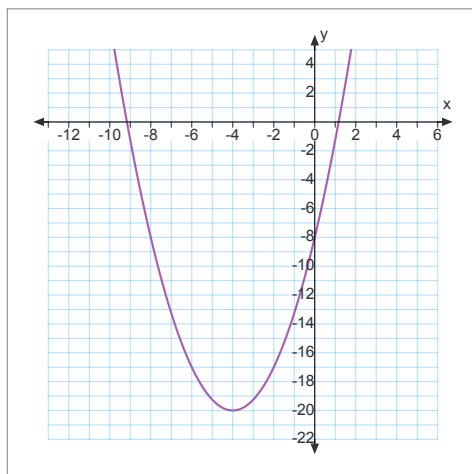
Graphing Calculator Skills:

- entering an expression to graph
- table of values
- trace
- intersect
- calculate (CALC)
- Zoom

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For the following quadratic, determine the following:

$$y = 0.75x^2 + 6x - 8$$



- (a) What is "y" when  $x = -5$ ?
- (b) What is "x" when  $y = -14$ ?
- (c) What is "x" when  $y = -20$ ?

Verify using your graphing calculator.

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Solve the following, consider what is going on graphically as you find the answer:

$$5 = 3x - 4$$

Graphical solution.

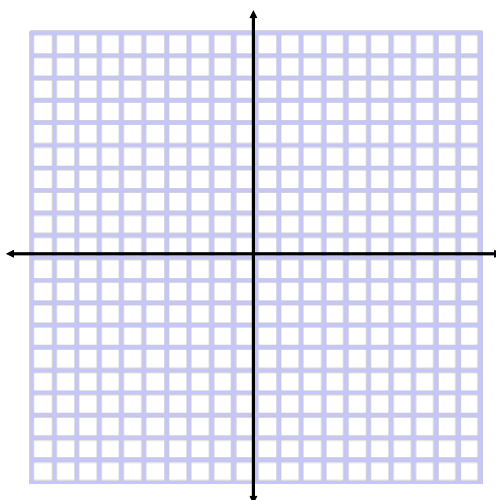
Two lines:

$$y = 5$$

and

$$y = 3x - 4$$

Where do they meet?



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Solve the following, consider what is going on graphically as you find the answer:

$$x^2 + 6x + 8 = 0$$

Graphical solution.

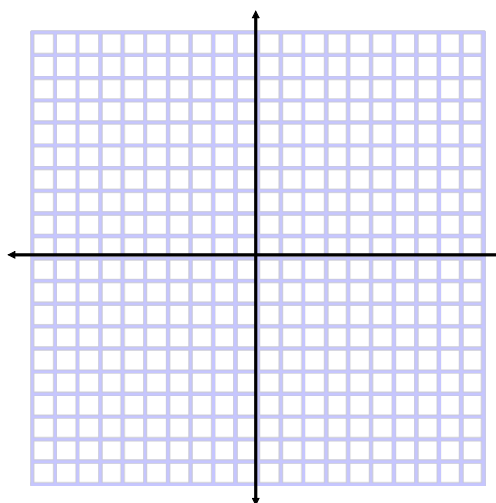
A line:

$$y = 0$$

and a quadratic

$$y = x^2 + 6x + 8$$

Where do they meet?



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CASE 1 - Solve the following, consider what is going on graphically as you find the answer:

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

Graphical solution.

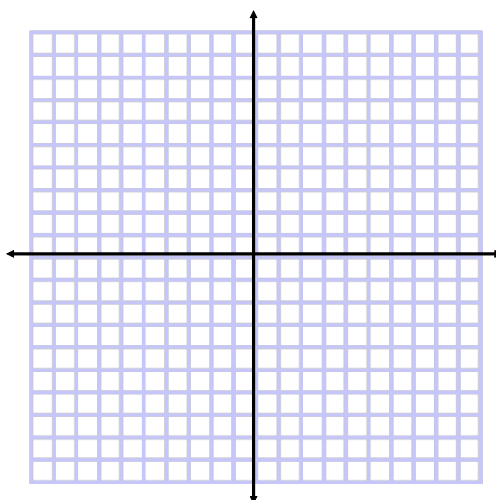
A line:

$$y = 7$$

and a quadratic

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

Where do they meet?



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CASE 2 - Solve the following, consider what is going on graphically as you find the answer:

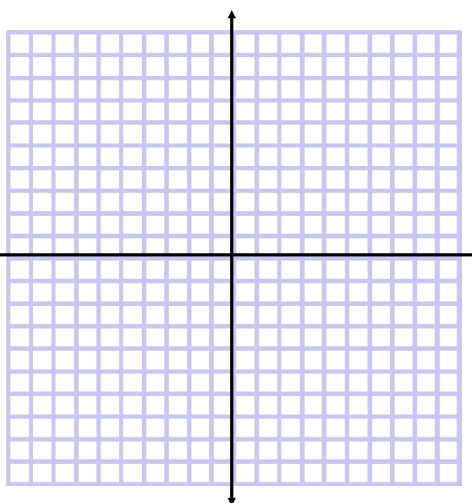
$$x^2 - 2x + 4 = 7$$

Algebraic and  
Graphical solution.

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

If we subtract 7 from both sides, we will be applying a transformation of down 7 units, which will create a new graph.

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



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Consolidation Questions:

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