

Name \_\_\_\_\_

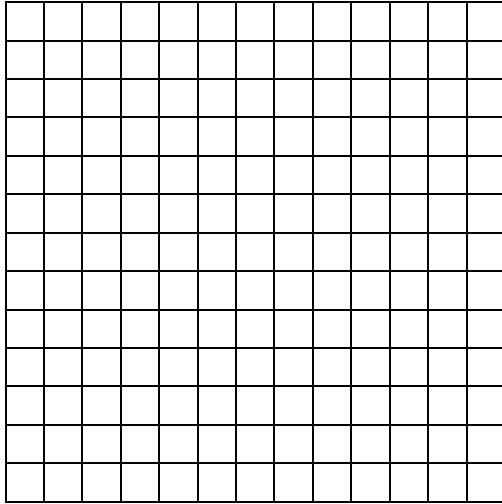
Period \_\_\_\_\_

Practice 6.1-6.4

Mrs. Jensen

*Graph the following by finding the vertex and at least 4 other points.  
You must show how you calculate the vertex and the points.*

1.  $y = x^2 + 2x - 3$



2. *Solve the following by factoring:*

a.  $y = x^2 + 14x + 33$

b.  $y = 6x^2 + 11x - 2$

3. *Use the square root property to solve:*

$x^2 + 12x + 36 = 25$

4. *Solve the following by completing the square:*

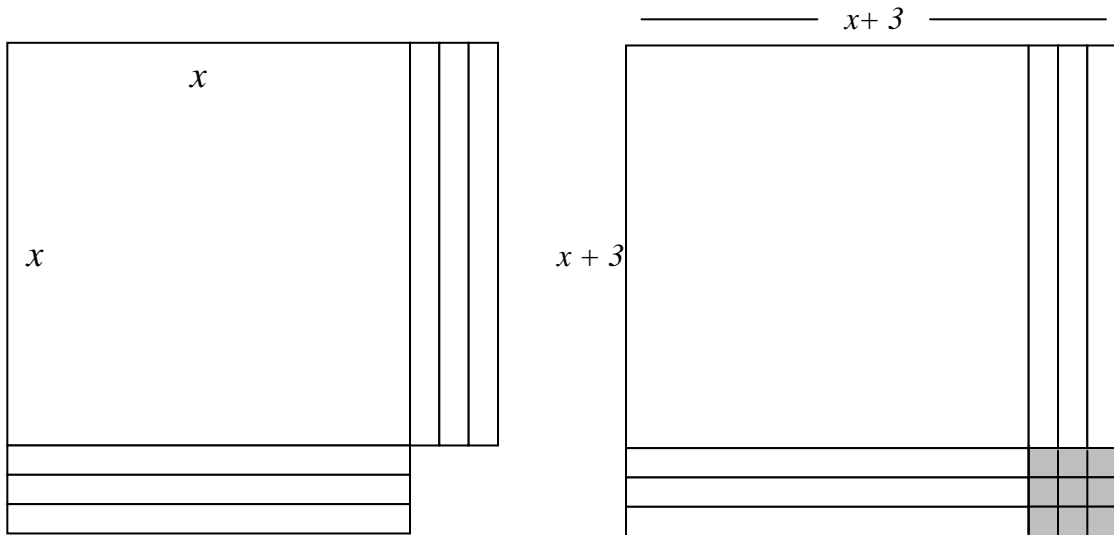
a.  $x^2 - 4x - 13 = 0$

b.  $2x^2 - 10x + 2 = 0$

Use your calculator to fill in the chart:

Equation	Window	Vertex	Roots (zeros)
6. $y = -x^2 + 6x - 4$			
7. $y = 6x^2 - 9x$			
8. $y = 2x^2 - 8x - 90$			

The Greeks had a method of completing the square geometrically in which they literally changed a figure into a square. For example to complete the square of  $x^2 + 6x$ , we begin with a square of side  $x$ , as in the figure. We add three rectangles of width 1 to the right side and the bottom to get a region with area  $x^2 + 6x$ . To fill in the corner (complete the square), we must add nine 1 by 1 squares as shown.



- What is the area of the original figure (*hint: the variable will be in your answer*).
- What is the area of each strip?
- What is the total area of the six strips?
- What is the area of each small square in the corner of the second figure?
- What is the total area of the small squares?
- What is the area of the new, larger square?

