

Name \_\_\_\_\_

Date \_\_\_\_\_ Pd. \_\_\_\_\_

**Notes: Solving Quadratic Equations by Completing the Square****Example 1** Solve  $x^2 - 2x + 1 = 9$ .

Round to the nearest tenth if necessary.

**Example 2** Solve  $x^2 - 4x + 4 = 5$ .

Round to the nearest tenth if necessary.

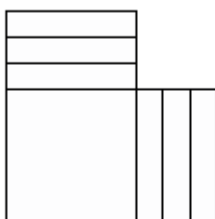
**Step 1** Find  $\frac{b}{2}$ .**Step 2** Find  $\left(\frac{b}{2}\right)^2$ .**Step 3** Add  $\left(\frac{b}{2}\right)^2$  to  $ax^2 + bx$ .**Example** Solve  $x^2 + 6x + 3 = 10$  by completing the square.

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### Exit Card: Solving Quadratic Equations by Completing the Square

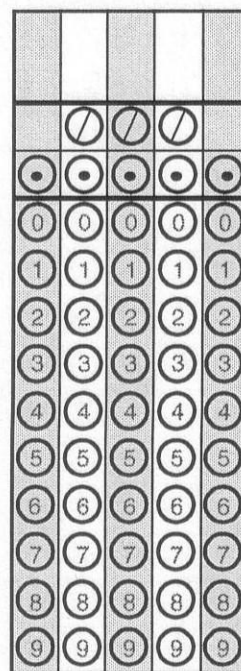
Look at the Algebra tiles figure below.



The figure can be used to complete the square for the expression  $x^2 + 6x + \underline{\hspace{2cm}}$ .  
How many unit squares are needed to complete the square?

- F.** 1      **G.** 3      **H.** 6      **J.** 9

A ball is dropped from an airplane, such that its height,  $h$ , in meters above the ground is given by the formula  $h(t) = -4.9t^2 + 490$ , where  $t$  is in seconds. How many seconds will it take for the ball to hit the ground?



Name \_\_\_\_\_

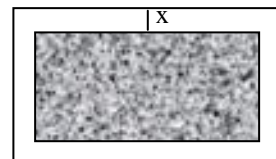
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**Homework: Pages 542 – 544 (5, 7, 16, 22, 28, 29, 32, 40, 49, 50, 54)**

5. Solve $m^2 + 14m + 49 = 20$	7. Find $c$ to make $t^2 + 5t + c$ a perfect square
16. Solve $t^2 + 2t + 1 = 25$	22. Find $c$ to make $y^2 - 10y + c$ a perfect square
28. Find all values of $c$ that make $x^2 + cx + 144$ a perfect square.	
29. Solve $s^2 - 4s - 12 = 0$	32. Solve $d^2 + 20d + 11 = 200$

40. Solve  $4h^2 + 25 = 20h$

49. A plan for a park has a rectangular plot of wild flowers that is 9 meters long by 6 meters wide. A pathway of constant width goes around the plot of wild flowers. If the area of the path is equal to the area of the plot of wild flowers, what is the width of the path?



50. In the early 1900s, the average American ate 300 pounds of bread and cereal every year. By the 1960s, Americans were eating half that amount. However, eating cereal and bread is on the rise again. The consumption of these types of foods can be modeled by the function  $y = 0.059x^2 - 7.423x + 362.1$ , where  $y$  represents the bread and cereal consumption in pounds and  $x$  represents the number of years since 1900. If this trend continues, in what future year will the average American consume 300 pounds of bread and cereal?

54. Determine which trinomial is ***not*** a perfect square trinomial.

A  $a^2 - 26a + 169$

B  $a^2 + 32a + 256$

C  $a^2 + 30a - 225$

D  $a^2 - 44a + 484$