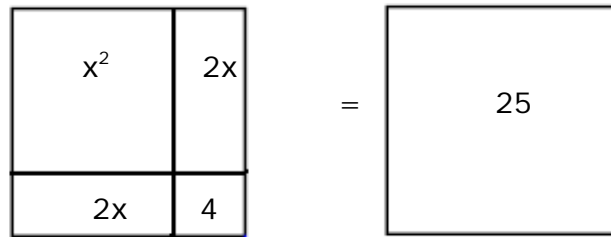


Visualizing the Quadratic Equation with the Area Model - Part I

If two squares have the same area, then they must have the same dimensions.

If



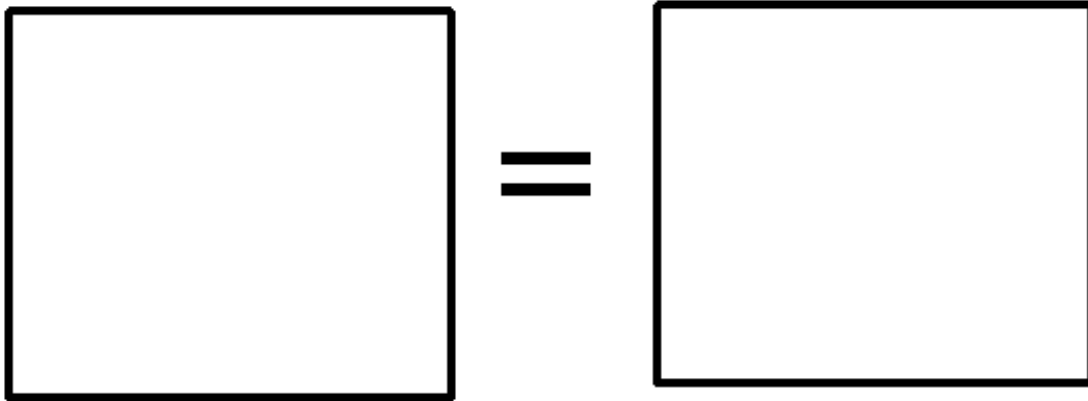
$$(x + 2)^2 = 25$$

Then $x + 2 = \pm\sqrt{25}$

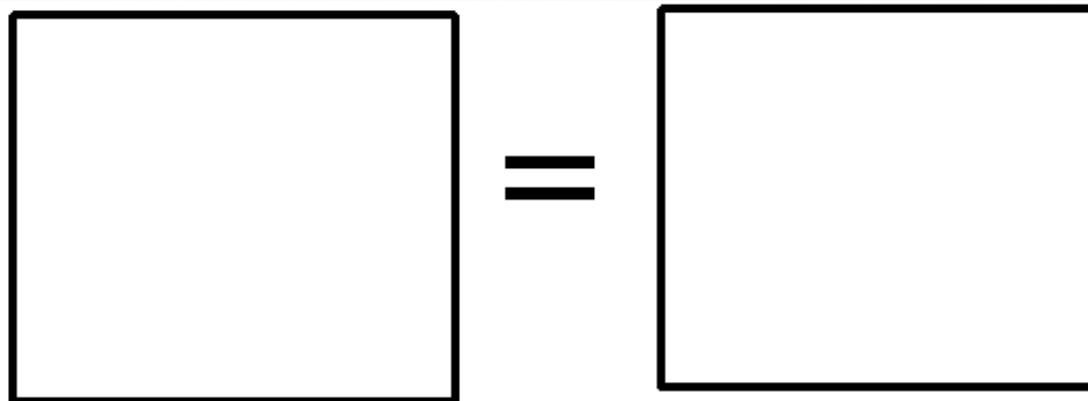
$$x + 2 = \pm 5$$

$$x = +3 \text{ or } -7$$

1. Use the following two squares to illustrate $x^2 - 2x + 1 = 4$



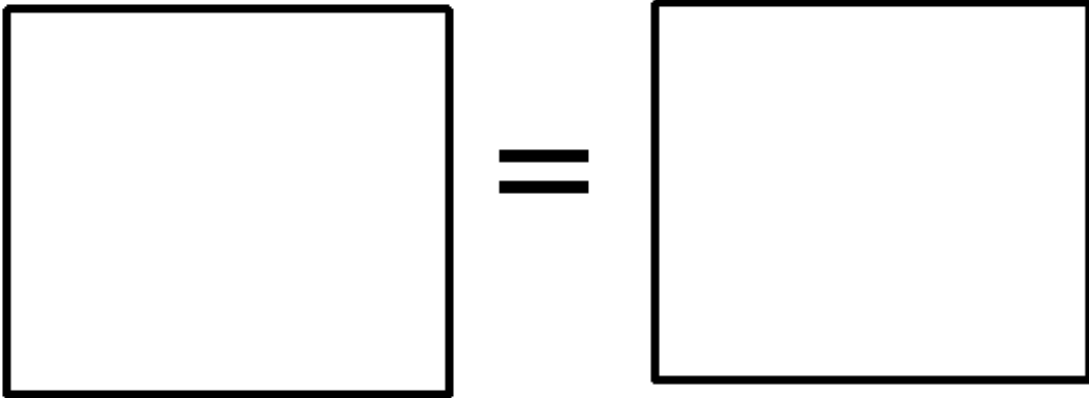
2. Use the area model to illustrate $4x^2 - 20x + 25 = 0$



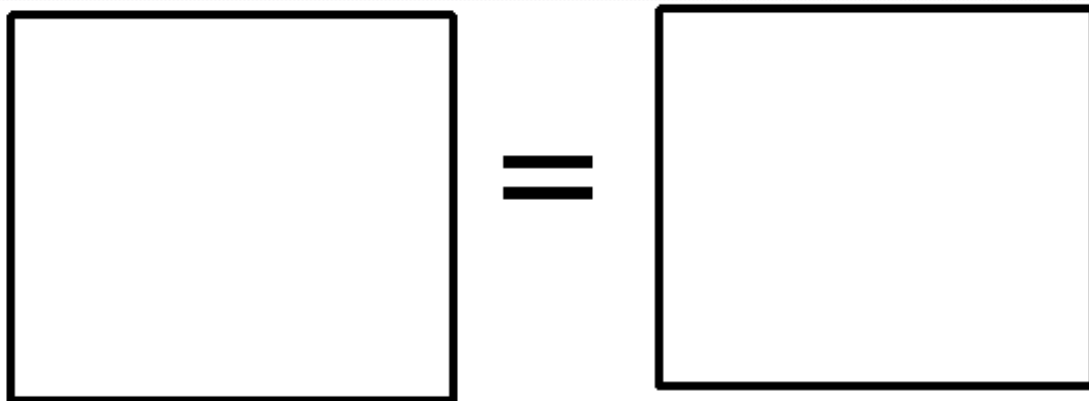
Suppose that we have a quadratic equation that is not a square. We can still use this model to complete the equation.

3. Use the area model to set up $x^2 + 6x - 7 = 0$.

First rewrite the equation as $x^2 + 6x = 7$. Begin to set up the areas. What area are you missing? To make the left side square a perfect square how much area must you add? Add this area to both sides of the equation. Now complete your area model.

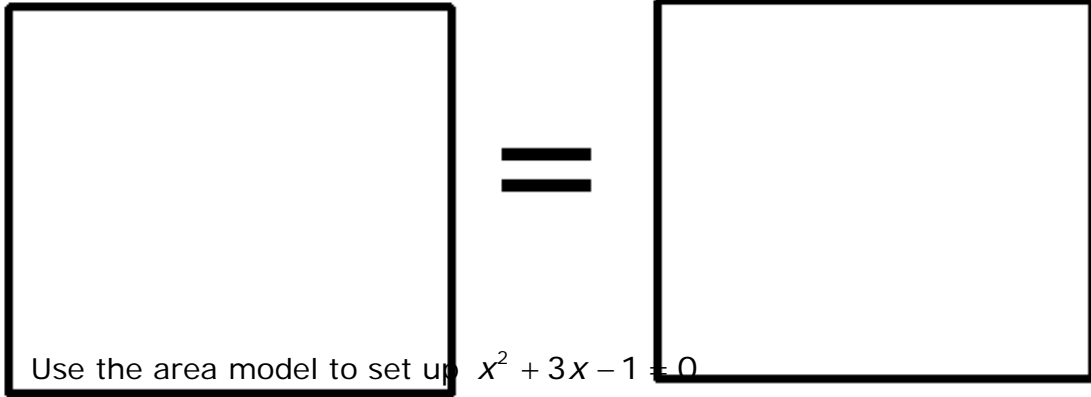


4. Use the area model to set up $x^2 + 8x - 9 = 0$. Complete the area model as you did in question 4.

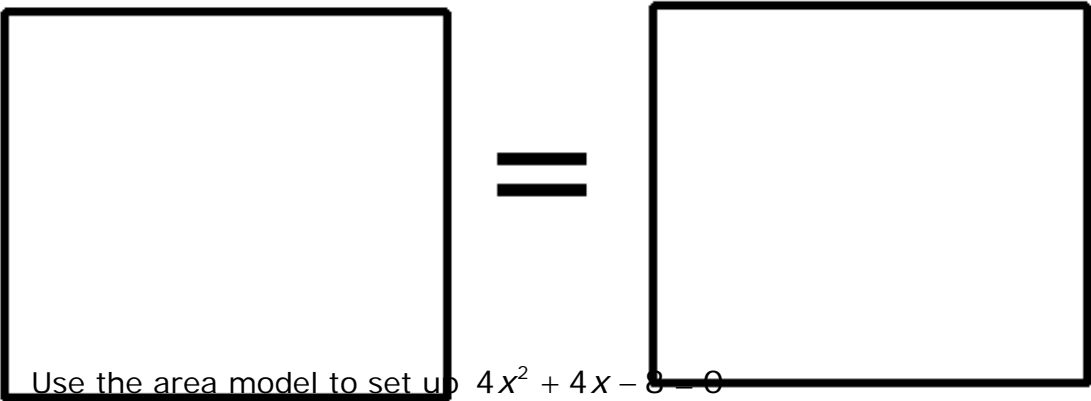


5. Use the area model to set up $x^2 + 5x - 2 = 0$

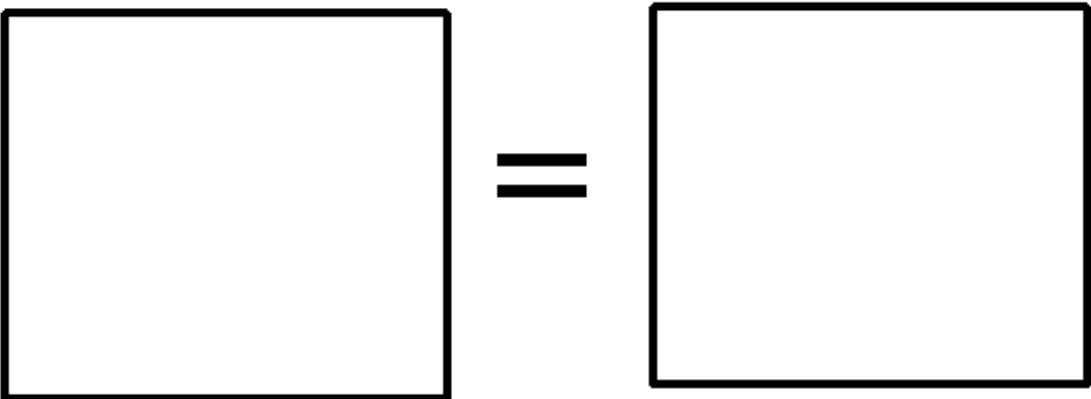
6. Use the area model to set up $x^2 + 3x - 1 = 0$



7. Use the area model to set up $4x^2 + 4x - 8 = 0$



8. Use the area model



to set up $9x^2 + 6x - 15 = 0$

