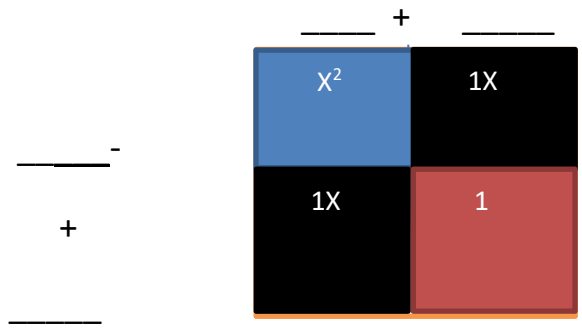
Completing the Square
Reverse Box Method

Completing the Square is another method for finding the roots of a quadratic equation.

1. $X^2 + 2X + 9 = 10$



We begin the process by subtracting the number term of the quadratic expression on both sides of the equation. What is your new equation? _____

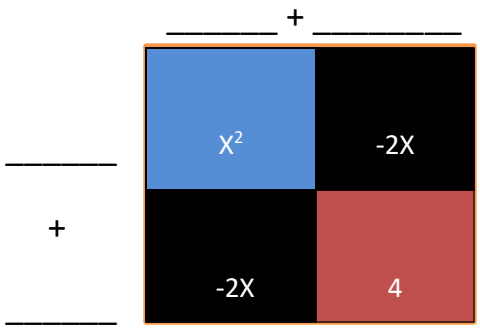
Find the dimensions of the square illustrated above._____
How do the 1X area compare with the 2X in the original quadratic expression?
_____
How does the area of 1 compare to the coefficient of the 1X in the square?

What are the dimensions of the square illustrated above?
_____

Write these dimensions as square factors (ie. X^2). _____

Set up your equation and solve for X: (DO NOT CONTINUE UNTIL TEACHER APPROVAL)

2. $X^2 - 4X - 3 = 5$



Add the number term on the right side of the equation to both sides of the equation. What is your new equation? _____

Find the dimensions of the square illustrated above._____

How does the -2X area compare with the 4X term in the original quadratic expression?

_____

How does the area of 4 compare to the coefficient of the -2X in the square?

What are the dimensions of the square illustrated above?

_____

Write these dimensions as square factors (ie. X^2). _____

Set up your equation and solve for X: (DO NOT CONTINUE UNTIL TEACHER APPROVAL)

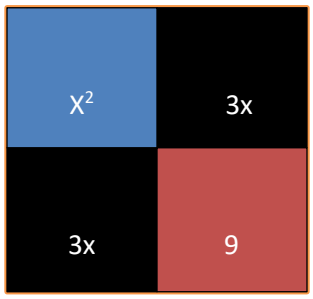
3. $X^2 + 6X + 4 = 7$

_____ + _____

_____

+

_____



Add the number term on the right side of the equation to both sides of the equation. What is your new equation? _____

Find the dimensions of the square illustrated above._____

How does the 3X area compare with the 6X term in the original quadratic expression?

_____

How does the area of 9 compare to the coefficient of the 3X in the square?

What are the dimensions of the square illustrated above?

_____

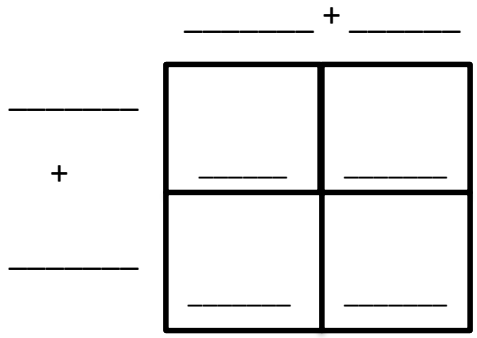
Write these dimensions as square factors (ie. X^2). _____

Set up your equation and solve for X: (DO NOT CONTINUE UNTIL TEACHER APPROVAL)

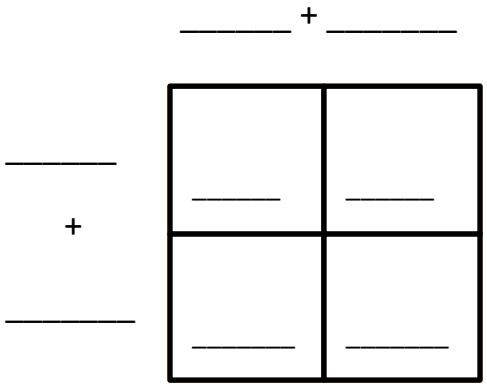
Now try some on your own!

Solve for x. Show your work on the right side of the square!

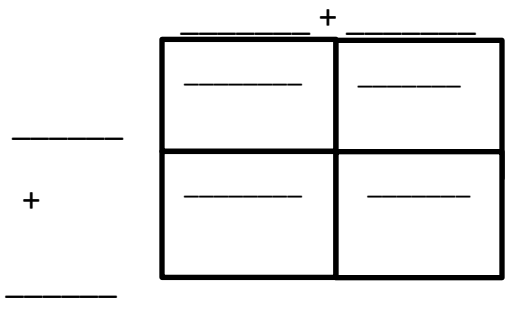
4. $X^2 - 8X - 10 = -3$



5. $X^2 - 2X + 5 = 10$



6. $X^2 + 6X - 6 = 8$



Now try these. Show all work! You may draw your own boxes if necessary.

7. $X^2 + 3X + 1 = 5$

8. $X^2 - 5x - 10 = -6$

9. $X^2 + 7X + 4 = 7$

10. $X^2 - 3x + 7 = 10$