

Name _____

Completing the Square Worksheet

To solve $ax^2 + bx + c = 0$ by "completing the square":

- 1) Put the variable terms on the left of the equal sign, in standard form, and the constant term is on the right. So, get it into the form $ax^2 + bx = c$.
- 2) Divide by "a", so the coefficient of x^2 is 1.
- 3) Take one-half the coefficient of the x-term, squaring it, and adding this quantity to both sides of the equation. Basically, add $\left(\frac{b}{2}\right)^2$ to both sides.
- 4) Factor the Perfect Square Trinomial on the left side of the equation and simplify the right side. Remember, it always factors into $\left(x + \frac{b}{2}\right)^2$
- 5) Use the principle of square roots
- 6) Solve the remaining equation
- 7) Check your answer in the original equation.

Solve each equation by completing the square.

1. $x^2 - 2x - 15 = 0$

3. $2x^2 + 8x - 7 = -2$

5. $2x^2 - 4x + 5 = 6$

7. $x^2 + 2x - 8 = 0$

9. $3x^2 - 2x - 2 = 4$

11. $x^2 - 2x - 1 = 2$

13. $x^2 + 4x = 3$