Math 154B Name_____

Completing the Square Worksheet

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

1) Put the variable terms are 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. $x^2 - 2x - 15 = 0$

2. $x^2 + 2x = 35$

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

4. $8x = 4x^2 - 1$

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

6. $6x = 4x^2 - 1$

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

8. $x^2 - 7x = 18$