Some quadratic equations in the form of $ax^2+bx+c=0$ can be solved easily by factoring. For example, the equation $x^2+6x-16=0$ can be factored easily to $(x+8)(x-2)=0$ to give solutions of $x=-8$ *and* $x=2$

When a quadratic equation cannot be factored using integers, you have two options. You can use the quadratic formula of you can use a method called **completing the square**. When a = 1, completing the square is the way to go (when a >1, use the quadratic formula).

Example 1: Solve $x^2+8x-10=0$ by completing the square.

Since it cannot be factored using integers, Write the equation in the form $ax^2+bx=-c$	$x^2+8x-10=0$ $x^2+8x=10$
Find $\frac{1}{2}$ of ***b*** and add the square of that number $(\frac{b}{2})^2$ to both sides of the equation	Think $b=8$ $\frac{1}{2}b=4$ and $4^2=16$ $x^2+8x=10$ $x^2+8x+16=10+16$
The left side is now a perfect square trinomial (PST), so factor it.	$(x+4)(x+4)=26$ $(x+4)^2=26$
Find the square root of each side.	$(x+4)^2=26$ $x+4=\pm\sqrt{26}$
Solve for x	$x=-4\pm\sqrt{26}$

Math 2 U2.6 Solve Quadratics by Completing the Square Name: _______________

Solve each quadratic by completing the square.

1) $a^2 + 2a - 3 = 0$

7) $m^2 - 12m + 26 = 0$

2) $a^2 - 2a - 8 = 0$

8) $x^2 + 12x + 20 = 0$

3) $p^2 + 16p - 22 = 0$

9) $k^2 - 8k - 48 = 0$

4) $k^2 + 8k + 12 = 0$

10) $p^2 + 2p - 63 = 0$

5) $r^2 + 2r - 33 = 0$

11) $m^2 + 2m - 48 = -6$

6) $a^2 - 2a - 48 = 0$

12) $p^2 - 8p + 21 = 6$