TOPIC: COMPLETING THE SQUARE

- If a quadratic isn't in the form $(x + \#)^2 = [\textbf{constant}]$, you can *put it in that form* by **completing the square**.

$(x + 3)^2 = 2$

↓ Square Root Property

$\sqrt{(x + 3)^2} = \sqrt{2}$

$x^2 + 6x + \_\_\_\_ = -7 + \_\_\_\_$

↓ Complete the Square

$(x + \#)^2 = [\textbf{constant}]$

↓ Square Root Property

$\sqrt{(x + \#)^2} = \sqrt{[\textbf{constant}]}$

SOLVING QUADRATIC EQUATIONS				
$ax^2 + bx + c = 0$ *(Standard form)*				
	FACTORING	**SQ. ROOT PROPERTY**	**COMPLETE THE SQUARE**	**METHOD #4**
USE IF	• Has obvious factors **OR** • $c = 0$	• $(x + \#)^2 = [\textbf{constant}]$ **OR** • $b = 0$	• Leading coeff. (a) is ___ **AND** • b is _____	
STEPS	**1)** Write eqn in standard form **2)** Factor completely **3)** Set factors = 0, solve for x **4)** Check solutions	**1)** Isolate squared expression **2)** Take + & − square root **3)** Solve for x **4)** Check solutions	**1)** Simplify eqn to $x^2 + bx = c$ **2)** Add ___ to both sides **3)** Factor to $(x + \_\_\_)^2$ **4)** Solve using _____ prop.	

EXAMPLE: Solve the quadratic equation by completing the square.

(A)

$x^2 + 6x \quad = -7$

$(x + \_\_\_)^2 =$

(B)

$x^2 + 8x + 1 = 0$

$(x + \_\_\_)^2 =$

$a^2 + 2ab + b^2 = (a + b)^2$

(Perfect Square Trinomial)

$x^2 + bx + \_\_\_\_\_ = c + \_\_\_\_\_$

$(x + \_\_\_)^2 = [\textbf{constant}]$

TOPIC: COMPLETING THE SQUARE

PRACTICE**:** Solve the given quadratic equation by completing the square.

$x^2 + 3x - 5 = 0$

COMPLETE THE SQUARE
1) Simplify eqn to $\boldsymbol{x^2 + bx = c}$
2) $+ \left(\frac{b}{2}\right)^2$ to both sides
3) Factor to $\left(x + \frac{b}{2}\right)^2$
4) Solve using sqrt. prop.

PRACTICE**:** Solve the given quadratic equation by completing the square.

$3x^2 - 6x - 9 = 0$