SWBAT complete the square

Warm up:
Draw and label as much as you know about a circle.

Objective: SWBAT complete the square to solve a quadratic equation.

Agenda:

Warm up
Finish vocabulary
Notes
practice
closure

Put this chart in your notebook

Word	Defn	Picture	Real world Example

Vocabulary for Circles - complete chart

Radius
Diameter
Center (of a circle)
Central Angle
Inscribed Angle
Circumscribed Angle
Tangent Line
Chord
Secant Line
Radian (angle measure)
Arc Length
Sector

Multiply these terms

$(x+2)(x+2)$

$(x - 3)(x - 3)$

$(x + 1)(x+1)$

$(x - 6)(x - 6)$

$(x + 7)^2$

What are some patterns that you noticed?

$(x+2)(x+2)$

$(x - 3)(x - 3)$

$(x + 1)(x+1)$

$(x - 6)(x - 6)$

$(x + 7)^2$

We are going to use this pattern
to help solve Quadratic Equations

$x^2 + 4x + 4 = 0$

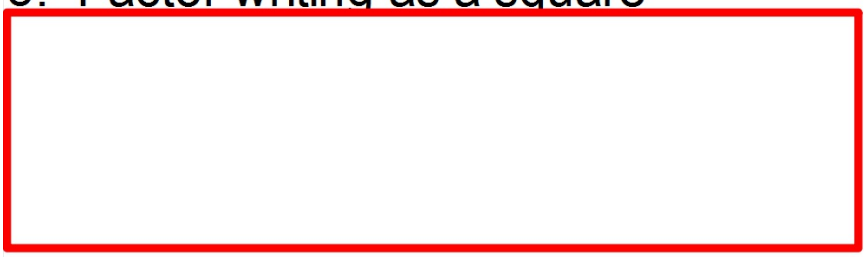
$x^2 - 12x + 36 = 0$

What happens when it isn't quite this nice? This is called "Completing the Square"

Steps:

1. Take the constant to the right
2. and leave a hole behind it.
3. Half the middle coefficient
4. Square it and then add it
5. Factor writing as a square

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



More examples:

$x^2 + 4x - 12 = 0$

Try these

1. $x^2 + 6x + 7 = 0$

2. $x^2 - 4x - 5 = 0$

These are harder: work with a partner.

3. $x^2 + 10x - 7 = 18$

4. $x^2 - 3x + 5 = 5x + 15$

TOD:

Pick one of the following:

1. **Create a problem and solve it**

2. **Write a paragraph describing the steps of completing the square.**

3. **Create a story using the vocabulary words**