Section 11.1—Completing the Square

Solve by factoring $x^2 - 81 = 0$

What if we added 81 to both sides?

$x^2 = 81$

What number(s) when squared will give you 81?

What is the SQUARE ROOT PRINCIPLE?

When can I use the square root principle?

Example Solve using the square root principle.

$a^2 = 20$ $(a+6)^2 = 9$

$-\frac{2}{3}m^2 = -\frac{8}{5}$

$(5m+1)^2-9=-2$ $(t-5)^2=-28$

Review Factor the following expressions

$x^2+10x+25$ $y^2-14y+49$

$x^2-18x+81$ $x^2+20x+100$

What is a PERFECT SQUARE TRINOMIAL?

Make the following expressions PERFECT SQUARE TRINOMIALS. Factor.

x^2+10x+____ x^2-6x+____

x^2-24x+____ x^2+9x+____

Example $x^2-10x+9=0$

This process is called _____ the square.

_____ the square allows us to use the _____

_____ Principle.

How do I COMPLETE THE SQUARE?

1. Make sure the coefficient of the squared term is _____.
2. Put in proper form: _____ terms on the left,

   _____ on the right. (Placeholder if you like)
3. _____ the square

   a) Divide the _____ term by _____

   b) _____ it

   c) _____ it to both sides
4. Use the _____ _____ Principle to solve.

Example

$x^2 - 14x - 29 = 0$

$2x^2 + 6x - 5 = 0$

$3x^2 + 4x - 2 = 0$

What is the RULE OF 3's?