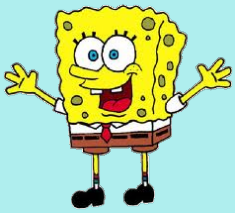
Insert Bellwork

Today you will need:

- Small white board materials
- Last Nights HW
- Box of Fun
- Math notebook

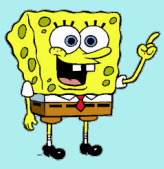
8.7 Completing the Square

Obj: I will write equations of circles by completing the square.



Solve each equation

When you take the square root of each side, you ALWAYS have 2 answers



Solve each equation

When you take the square root of each side, you ALWAYS have 2 answers

$$(x+5)^2 = 16$$

Complete the square (Half & Square)

1. Isolate the x-terms
2. Take half of the x-term and square it
3. Add it to both sides of the equation
4. Solve (You will have 2 answers)

Complete the square (Half & Square)

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

1. Isolate the x-terms
2. Take half of the x-term and square it
3. Add it to both sides of the equation
4. Solve (You will have 2 answers)

Complete the square to find the equation of a circle:

1. Move the loose number over to the other side.
2. Group together the terms with similar variables.
3. Complete the square for both x-terms and y-terms.
4. Simplify. Rewrite as an equation of a circle.
5. State the center and radius.

Equation of a Circle:

$(x-h)^2 + (y-k)^2 = r^2$

Center: (h,k) Radius: r

$x^2 + y^2 - 4x + 10y - 20 = 0$

1. Move the loose number over to the other side.
2. Group together the terms with similar variables.
3. Complete the square for both x-terms and y-terms.
4. Simplify. Rewrite as an equation of a circle.
5. State the center and radius.

$x^2 + y^2 - 4x + 12y - 7 = 0$

1. Move the loose number over to the other side.
2. Group together the terms with similar variables.
3. Complete the square for both x-terms and y-terms.
4. Simplify. Rewrite as an equation of a circle.
5. State the center and radius.

$x^2 + y^2 + 6x - 10y - 15 = 0$

1. Move the loose number over to the other side.
2. Group together the terms with similar variables.
3. Complete the square for both x-terms and y-terms.
4. Simplify. Rewrite as an equation of a circle.
5. State the center and radius.

Whiteboards

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

1. Move the loose number over to the other side.
2. Group together the terms with similar variables.
3. Complete the square for both x-terms and y-terms.
4. Simplify. Rewrite as an equation of a circle.
5. State the center and radius.