Notes 1/5

warm up

factor: 1. $x^2 - 10x + 25$
2. $x^2 - 4x + 4$
3. $x^2 + 6x + 9$
4. $x^2 + 7x + 49/4$

what pattern do you see?

perfect square factoring: when you can write the factors as a square, they are the same. ex $(x+2)(x+2) = (x+2)^2$

completing the square a=1 (how you change standard form to vertex form)

steps:
1. write in standard form
2. separate the x^2 & x terms from # (constant)
3. $(b/2)^2$ add to x^2 & x, subtract from constant to even out (*always opp. signs)
4. write as $(x+b/2)^2 + c$ (combine constants)

let's see an example:

$y = x^2 - 8x + 17$ complete the square

$y = x^2 - 8x + 17$ ①

$y = (x^2 - 8x \_\_\_\_) + 17 \_\_\_\_$ ②

$b = -8$ $(b/2)^2 = (-8/2)^2 = (-4)^2 = 16$ ③

$y = (x^2 - 8x + 16) + 17 - 16$

$(x+b/2) = x-4$

$y = (x-4)^2 + 1$ ④

final answer: $y = (x-4)^2 + 1$

↑ vertex form.

goal is to find the # that will allow us to make a perfect square.

you have to add & subtract in order to make the equation equal still.