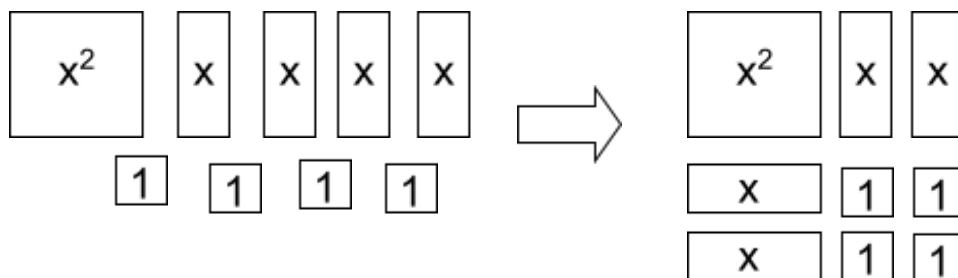


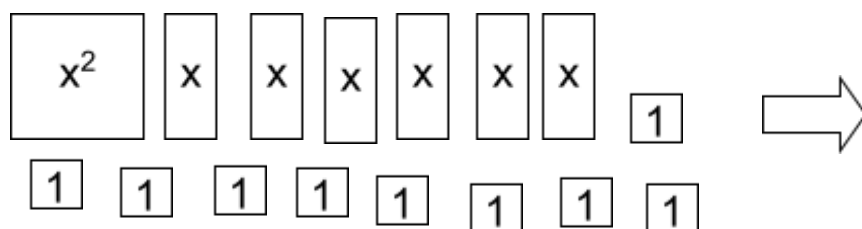
# Video Notes Page – Completing the Square

For each, take the given pieces and DRAW them so that they make a perfect square!

Sample:

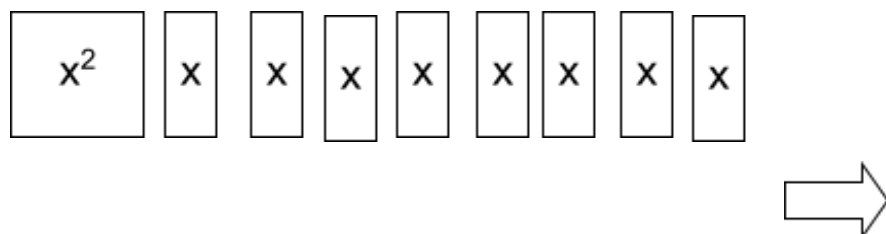


Problem 1:



Problem 2:

Can you make a square?  
What do you need to ADD  
to fill the hole that exists?



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Let's make equations for situations above. Then, factor each.

Sample

Problem 1

Problem 2

## Perfect Square Trinomials

Remember perfect square trinomials? Factor each below by noticing the pattern:  $a^2 + 2ab + b^2 = (a + b)^2$

Positives

$$x^2 + 14x + 49 \quad x^2 + 12x + 36 \quad x^2 + 8x + 16$$

Negatives

$$x^2 - 10x + 25 \quad x^2 - 12x + 36 \quad x^2 - 4x + 4$$

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Fill in the missing "c" value in order to make a **perfect square** for each. **Then, factor!**

$$x^2 - 6x + \underline{\quad} \quad x^2 + 16x + \underline{\quad} \quad x^2 - 20x + \underline{\quad} \quad x^2 + 24x + \underline{\quad}$$

$$x^2 - 26x + \underline{\quad} \quad x^2 - 10x + \underline{\quad} \quad x^2 + 2x + \underline{\quad} \quad x^2 + 40x + \underline{\quad}$$

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### \* KEY CONCLUSION:

How do we get the number that is  
to be added in order to create an  
expression that is a perfect square?  
(this method is called completing the square!)

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## From the Video Lesson: **COMPLETING THE SQUARE**

Change each standard form quadratic to vertex form  $y = (x - h)^2 + k$  form by completing the square.

$$y = x^2 + 10x - 1$$

$$y = x^2 - 6x + 7$$

$$y = -x^2 + 8x + 6$$

Try Two! Complete the square to change each standard form quadratic to vertex form.

$$y = x^2 + 14x - 6$$

$$y = -x^2 + 18x + 11$$

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**What if “a” is NOT 1 ?**

$$y = 4x^2 + 32x - 13$$

Try Two! Complete the square to change each standard form quadratic to vertex form.

$$y = 2x^2 + 12x - 7 \quad y = -5x^2 + 18x - 14$$

