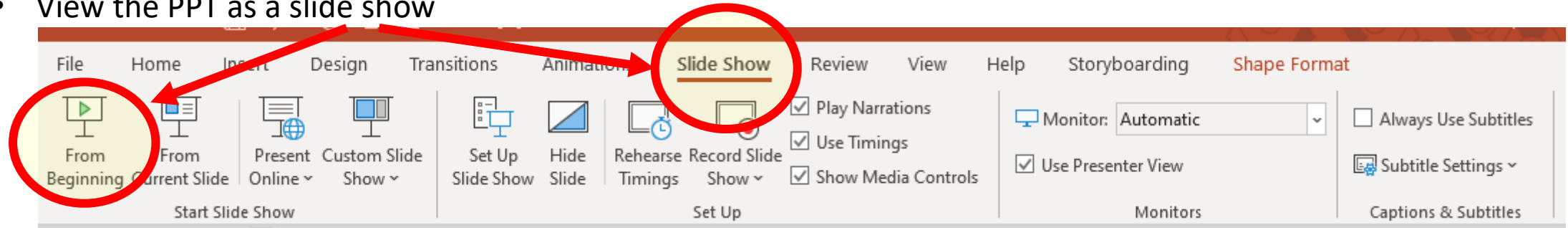


## How to best use these slides...

- View the PPT as a slide show



- Then click through every step
  - Mouse clicks will advance the slide show
  - Left/right arrow keys move forward/backward
  - Mouse wheel scrolling moves forward/backward
- When a question is posed, stop and think it through, try to answer it yourself before clicking
- If you have questions, email me, ask in the Teams Student Center channel!

# LESSON 3.1 Prep B

Factoring  $ax^2 + bx + c$

This is just like yesterday except we now have  $a \neq 1$

We now need to worry about an additional factor group:  $mn$

**Put the following into standard form:**

$$(2x + 1)(x + 3)$$

$$2x^2 + 7x + 3$$

$$(2x - 1)(x + 3)$$

$$2x^2 + 5x - 3$$

$$(2x - 1)(x - 3)$$

$$2x^2 - 7x + 3$$

$$(x + 4)(3x + 2)$$

$$3x^2 + 14x + 8$$

$$(x + 4)(3x - 2)$$

$$3x^2 + 10x - 8$$

$$(x - 4)(3x - 2)$$

$$3x^2 - 14x + 8$$

$$(mx + p)(nx + q)$$

$$mnx^2 + (np + mq)x + pq$$

What are the additional steps you need to do with these problems (compared to yesterday's)?

**Factor the following:**

$$6x^2 + 7x + 2$$

$$(2x + 1)(3x + 2)$$

$$6x^2 - x - 2$$

$$(2x + 1)(3x - 2)$$

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

$$(2x - 1)(3x - 2)$$

$$4x^2 + 12x + 5$$

$$(2x + 1)(2x + 5)$$

$$4x^2 + 8x - 5$$

$$(2x - 1)(2x + 5)$$

$$4x^2 - 12x + 5$$

$$(2x - 1)(2x - 5)$$

$$14x^2 + 31x + 15$$

$$(2x + 3)(7x + 5)$$

$$14x^2 + 11x - 15$$

$$(2x + 3)(7x - 5)$$

$$14x^2 - 31x + 15$$

$$(2x - 3)(7x - 5)$$

$$8x^2 + 56x + 48$$

$$8(x + 1)(x + 6)$$

$$8x^2 + 40x - 48$$

$$8(x - 1)(x + 6)$$

$$8x^2 - 56x + 48$$

$$8(x - 1)(x - 6)$$

$$-5x^2 - 6x - 1$$

$$-(5x + 1)(x + 1)$$

$$-5x^2 + 4x + 1$$

$$-(5x + 1)(x - 1)$$

$$-5x^2 + 6x - 1$$

$$-(5x - 1)(x - 1)$$

### **Factoring rules:**

To factor  $ax^2 + bx + c$  into  $(mx + p)(nx + q)$ , find  $m$  &  $n$  and  $p$  &  $q$  such that:

- $mn = a$
- $np + mq = b$
- $pq = c$

### **Simple steps:**

1. Factor out GCF (Greatest Common Factor)
2. If  $a$  is negative, factor out -1
3. Find the factors pairs of  $c$  ... the factor pairs will be the candidates for  $p$  and  $q$
4. Find the factor pairs of  $a$  ... the factor pairs will be the candidates for  $m$  and  $n$
5. Play with them to find the combo that has  $np + mq = b$

# Homework

Problems found online, #3-22