

Factoring  
10.7.15  
Warmup

Foil:

1)  $(X+5)(X+5)$

2)  $(X-3)(X-3)$

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

## Factoring Polynomials Springboard 7.2

Pair up with your 9 o'clock partners.

What do you think of when you think of factoring polynomials?

Take a minute, talk to your partner and prepare to share their ideas.

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

Discuss with your partner about 2 different ways you would solve for  $x$ .

Factor  $x^2 + 5x + 6$

Put in standard form	$x^2 + 5x + 6$
What are the factors of 6 that add up to 5?	3, 2
Find the factors	$(x+3)(x+2)$

Factor:  $x^2 + 8x + 15$

Put in standard form	$x^2 + 8x + 15$
What are the factors of that add up to ?	
Find the factors	

Factor:  $g^2 - 3g - 10$

Put in standard form	
What are the factors of that add up to ?	
Find the factors	

You try:

1)  $z^2 + 2z - 63$

2)  $b^2 - 10b + 16$

$$3)r^2 - 7r - 18$$

## Special Identities

Square of sums  $(a + b)^2 = (a+b)(a+b)$

Square of Differences  $(a - b)^2 =$

Talk with your partner about how they relate to the warmup?

$$(x+5)(x+5) = x^2 + 10x + 25$$

$$(x - 3)(x - 3) = x^2 - 6x + 9$$



Factor this perfect trinomial :  $(x^2 + 6x + 9)$

Put in standard form	$x^2 + 6x + 9$
Identify a and b	$a =  \sqrt{x^2}  = x$ $b =  \sqrt{9}  = 3$
Does $2ab = 6x$ ?	$2(x)(3) = 6x$
Which formula to use?	Square of sums
Find the factors	$(x + 3)^2$



Factor:  $(x^2 - 10x + 25)$

Put in standard form	$x^2 - 10x + 25$
Which formula to use?	Square of differences
Identify a and b	

Find the factors	
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You try:

Factor:

1)  $x^2 + 4x + 4$

2)  $y^2 - 18y + 81$

3)  $m^2 + 14m + 49$

X Method factoring  
6.4

Factor:  $3x^2 - 16x - 12$

Put in standard form	$3x^2 - 16x - 12$
Draw the X and fill it out Find the factors of -36 that add up to -16.	

<p>Bring down the first and last term of the original polynomial</p> <p>Bring down the two factors and add a variable to each.</p>	
<p>Use Grouping and factor</p>	

Factor:  $36a^3 + 33a^2 = -6a$

<p>Put in standard form</p>	
<p>Draw the X and fill it out</p> <p>Find the factors of that add up to</p>	

Bring down the first and last term of the original polynomial	
Bring down the two factors and add a variable to each.	
Use grouping to factor	

We Try:

Factor  $6x^2 = 4x + 16$

Put in standard form	
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Draw the X and fill it out Find the factors of that add up to	
Bring down the first and last term of the original polynomial  Bring down the two factors and add a variable to each.	

You Try:

$$1) \quad 6x^2 + x = 2$$

$$2) \quad 15a^2 + 4a - 3$$