

Factoring a Quadratic (GCF)

Date:

Standards

A.SSE.1.a - Interpret parts of an expression, such as terms, factors, and coefficients.

A.SSE.2 - Use the structure of an expression to identify ways to rewrite it.

Essential Questions

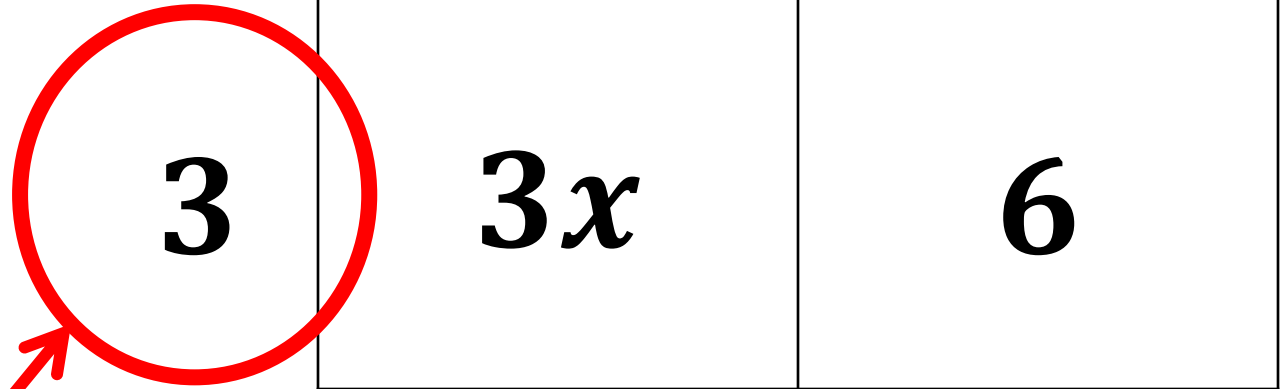
- How can I simplify a polynomials?
- How can I simplify a polynomial by grouping?

How can I
simplify
polynomials?

$$3x + 6$$

$$x$$

$$2$$



What do both
terms have in
common?

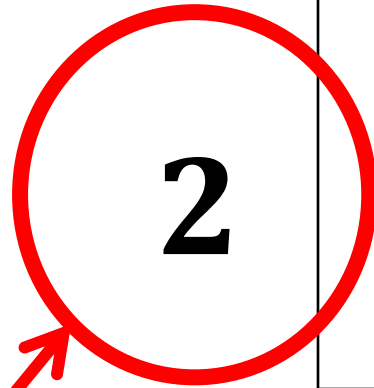
$$3(x + 2)$$

How can I
simplify
polynomials?

$$2x - 10$$

$$x$$

$$-5$$



The number 2 is circled in red.

$2x$	-10
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What do both
terms have in
common?

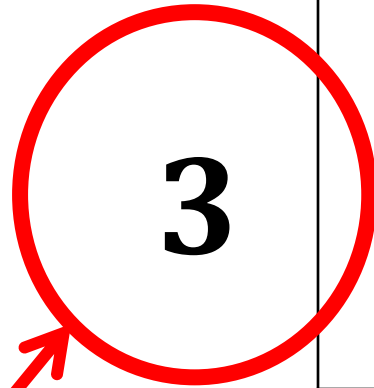
$$2(x - 5)$$

How can I
simplify
polynomials?

$$9 - 3x$$

$$3$$

$$-x$$



A red circle highlights the number 3, which is the common factor of the terms in the polynomial above.

9	$-3x$

What do both
terms have in
common?

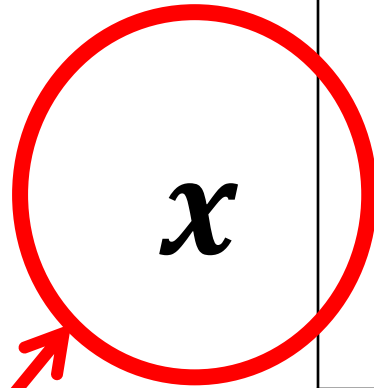
$$3(3 - x)$$

How can I
simplify
polynomials?

$$x^2 - 4x$$

$$x$$

$$-4$$


$$x$$

x^2	$-4x$
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What do both
terms have in
common?

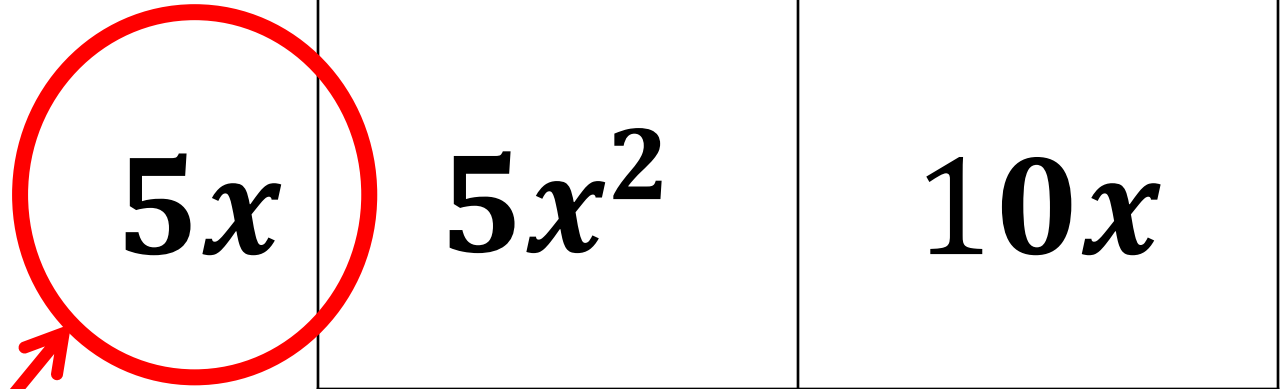
$$x(x - 4)$$

How can I
simplify
polynomials?

$$5x^2 + 10x$$

x

2



What do both
terms have in
common?

$$5x(x + 2)$$

How can I
simplify
polynomials?

$$7x^2 + 14x$$

x

2

$7x$	$7x^2$	$14x$
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$$7x(x + 2)$$

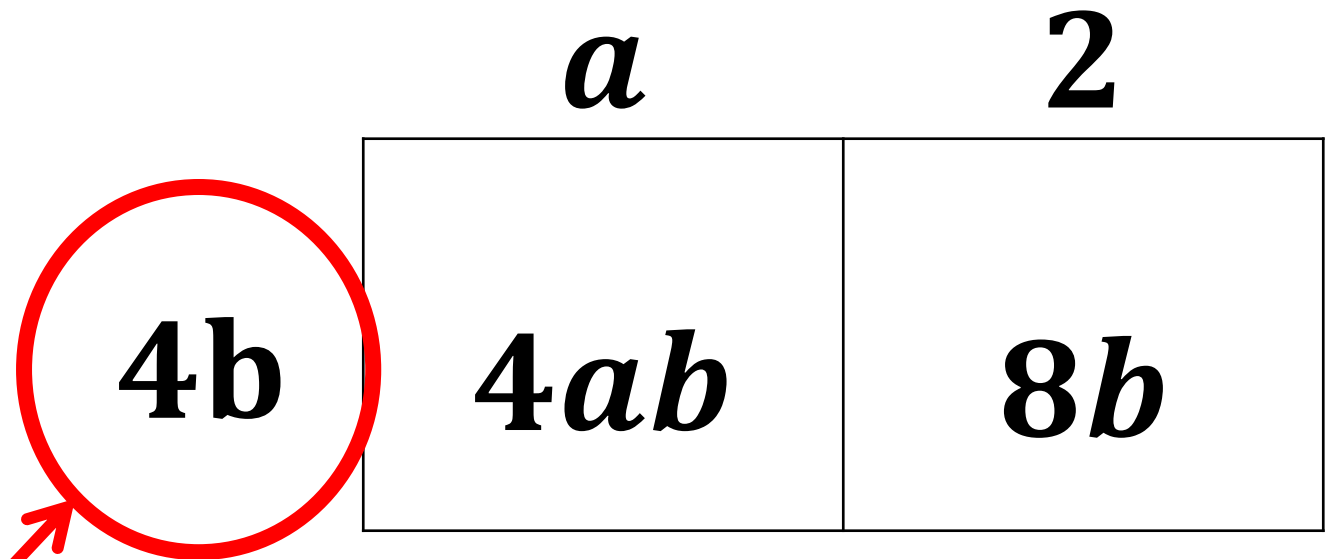
What do both
terms have in
common?

How can I
simplify a
polynomial
by grouping?

$$4ab + 8b + 3a + 6$$

Nothing can be factored from all four!!

Lets focus on $4ab + 8b$



What do both
terms have in
common?

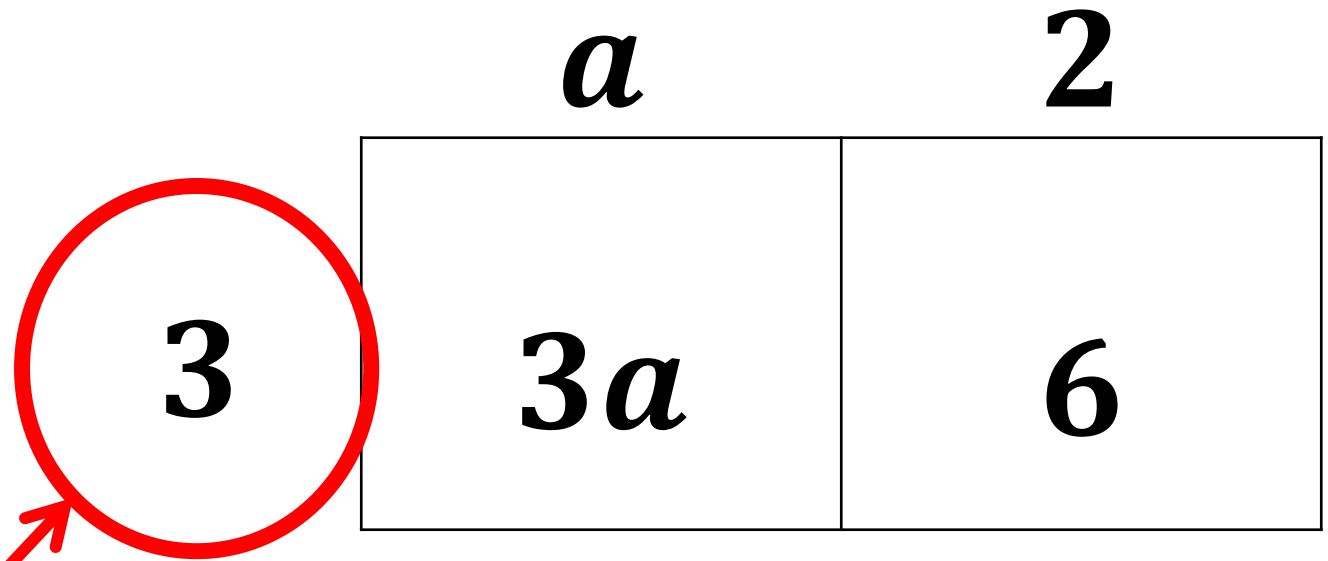
$$4b(a + 2)$$

How can I
simplify
polynomials?

$$4ab + 8b + 3a + 6$$

Nothing can be factored from all four!!

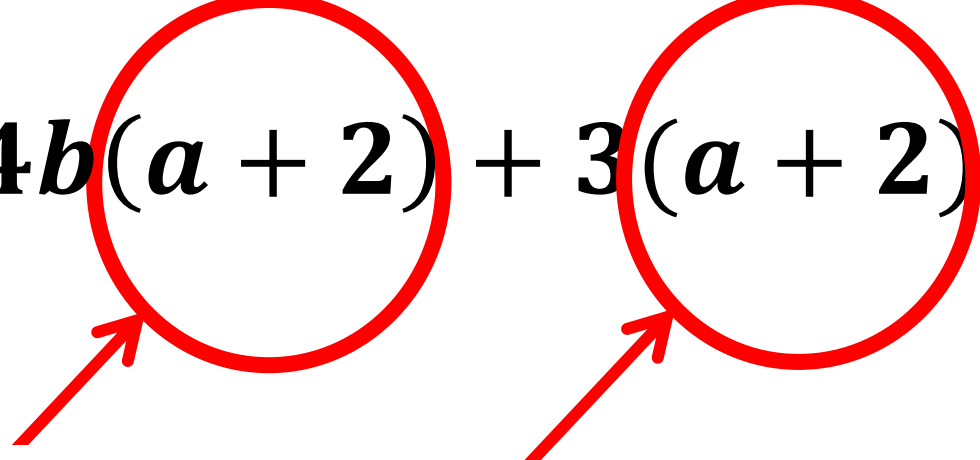
Lets focus on $3a + 6$



What do both
terms have in
common?

$$3(a + 2)$$

How can I
simplify
polynomials?

$$4b(a + 2) + 3(a + 2)$$


What do both sides have in common?

We will re-write this:

$$(4b + 3)(a + 2)$$

Why?!?!?!

How do I multiply two binomials together?

$$(4b + 3)(a + 2)$$

4b

3

a

$4ba$

$3a$

2

$8b$

6

$$4ba + 3a + 8b + 6$$

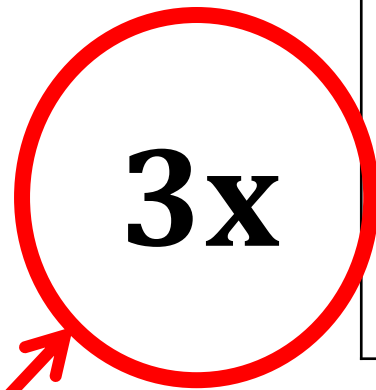
How can I
simplify
polynomials?

$$6x^2 - 15x - 8x + 20$$

Nothing can be factored from all four!!

Lets focus on $6x^2 - 15x$

$$2x \quad -5$$


$$3x$$

$6x^2$	$-15x$

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

What do both
terms have in
common?

How can I
simplify
polynomials?

$$6x^2 - 15x - 8x + 20$$

Nothing can be factored from all four!!

Lets focus on $-8x + 20$

$$-2x \quad 5$$

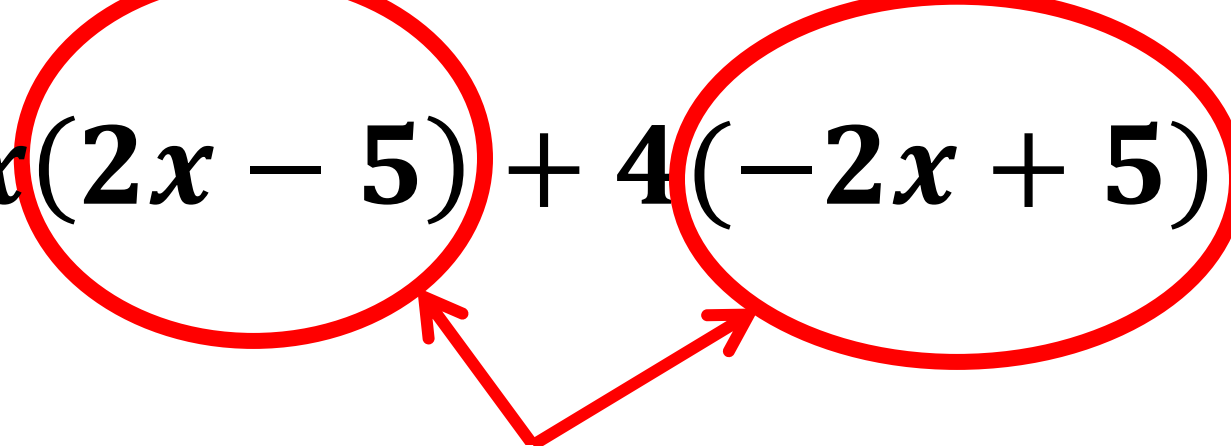
4

$-8x$	20
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What do both
terms have in
common?

$$4(-2x + 5)$$

How can I
simplify
polynomials?

$$3x(2x - 5) + 4(-2x + 5)$$


What do both sides have in common?

But they have different signs!!!!

$$3x(2x - 5) - 4(2x - 5)$$

We will re-write this:

$$(3x - 4)(2x - 5)$$

REFLECTION:

- 1) Answer one of the essential questions
- 2) How have previous lessons helped or connect with this lesson?
- 3) What are you still confused on or what new info did you learn?

Homework: Factoring - GCF

Factor the following polynomials

$$1) 12a^2 + 16a$$

$$2) 17d^3 + 5d$$

$$3) 6x - 8$$

$$4) rs - 5s - r - 5$$

$$5) 5x^2 - 35 + 3x - 21$$

$$6) 3n^2 + 6n$$