



## Essential Math 4

Virtual Learning

# 9-12th Essential Math

## Unit 10

**Lesson 4: Products, Sums, and Signs**

April 20, 2020



# Essential Math 4

## Essentials Math 4 Lesson 4: April 20, 2020

**Learning Target:**  
I can use an area model to factor trinomials ( $a=1$ ).



## Essential Math 4

You will explore the use of area models to factor algebraic expressions.

### Directions:

1. Click through the slides.
2. Watch all videos on slides.
3. Do what each slide asks on a separate sheet of paper.



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**Bell Work**  
**April 20, 2020**

**List all the possible factors of 24. Include all different sign combinations.**

**Example: -2, 12**



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## Bell Work Answer Key April 20, 2020

$$1 \times 24$$

$$2 \times 12$$

$$3 \times 8$$

$$4 \times 6$$

$$-1 \times -24$$

$$-2 \times -12$$

$$-3 \times -8$$

$$-4 \times -6$$

# Essential Math 4

## Thinking out Loud

*Jay and Lena are factoring this expression:  $x^2 + 5x - 6$ .*

Jay: We need two numbers with a product of 6 and a sum of 5. So it's 3 and 2, right?

Lena: We need a product of *negative* 6, Jay. One of the factors has to have subtraction in it.

Jay: But they still have to add up to positive five. So, *something* is positive...

Lena: That's true. Hmm. They have a product of -6 and a sum of 5. Oh! I know! \_\_\_\_\_

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*(Complete the dialog in your own words.)*



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### Answer Key:

Once you have completed the problem, check your answer here.

#### Thinking out Loud

*Jay and Lena are factoring this expression:  $x^2 + 5x - 6$ .*

Jay: We need two numbers with a product of 6 and a sum of 5. So it's 3 and 2, right?

Lena: We need a product of *negative* 6, Jay. One of the factors has to have subtraction in it.

Jay: But they still have to add up to positive five. So, *something* is positive...

Lena: That's true. Hmm. They have a product of -6 and a sum of 5. Oh! I know! \_\_\_\_\_

The two numbers are -1 and 6. So the factors are  $(x - 1)$  and  $(x + 6)$ .

*(Complete the dialog in your own words.)*

# Essential Math 4

Practice  
 Problems:  
 Unit 10  
 Lesson 4  
 page 18, 1-4

## IMPORTANT STUFF

Problems 1 through 4 show multiplication equations like this:  $(x \square 5)(x \square 4) = \underline{\hspace{2cm}}$ . Write only + or - in the boxes ( $\square$ ) to make all four problems different. Then use the models to multiply and complete the equations. The first is started for you.

①  $(x \oplus 5)(x \square 4) = \underline{\hspace{2cm}}$

	<u>x</u>	<u>5</u>	
<u>x</u>	$x^2$		
<u>-4</u>			

②  $(x \square 5)(x \square 4) = \underline{\hspace{2cm}}$

	<u>x</u>	
<u>x</u>	$x^2$	
<u>   </u>		

③  $(x \square 5)(x \square 4) = \underline{\hspace{2cm}}$

	<u>   </u>	<u>   </u>	
<u>   </u>			
<u>   </u>			

④  $(x \square 5)(x \square 4) = \underline{\hspace{2cm}}$

	<u>   </u>	<u>   </u>	
<u>   </u>			
<u>   </u>			



# Essential Math 4

## Answer

### Key:

Once you have completed the problems, check your answers for page 18 here.

Problems 1 through 4 show multiplication equations like this:  $(x \square 5)(x \square 4) = \underline{\hspace{2cm}}$ . Write only + or - in the boxes ( $\square$ ) to make all four problems different. Then use the models to multiply and complete the equations. The first is started for you.

①  $(x \oplus 5)(x \ominus 4) = \underline{x^2 + x - 20}$

	<u>x</u>	<u>5</u>
<u>x</u>	$x^2$	$5x$
<u>-4</u>	$-4x$	$-20$

③  $(x \ominus 5)(x \oplus 4) = \underline{x^2 - x - 20}$

	<u>x</u>	<u>-5</u>
<u>x</u>	$x^2$	$-5x$
<u>4</u>	$4x$	$-20$

②  $(x \oplus 5)(x \oplus 4) = \underline{x^2 + 9x + 20}$

	<u>x</u>	<u>5</u>
<u>x</u>	$x^2$	$5x$
<u>4</u>	$4x$	$20$

(The order of responses to problems 2, 3, and 4 will vary.)

④  $(x \ominus 5)(x \ominus 4) = \underline{x^2 - 9x + 20}$

	<u>x</u>	<u>-5</u>
<u>x</u>	$x^2$	$-5x$
<u>-4</u>	$-4x$	$20$

# Essential Math 4

## Practice Problems: Unit 10 Lesson 4 (page 18)

Now, work backward. Find the missing operations in the factors, and complete the models.

⑤  $x^2 - 5x - 14 = (x \square 2)(x \square 7)$

	<u>x</u>	—
<u>x</u>	$x^2$	
—		-14
—		

⑥  $x^2 - 9x + 14 = (x \square 2)(x \square 7)$

	<u>x</u>	—
<u>x</u>	$x^2$	
—		14
—		

⑦  $x^2 - 5x + 6 = (x \square 2)(x \square 3)$

	<u>x</u>	—
<u>x</u>	$x^2$	
—		6
—		

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## Answer Key:

Once you have completed the problems, check your answers for page 18 here.

Now, work backward. Find the missing operations in the factors, and complete the models.

⑤  $x^2 - 5x - 14 = (x \oplus 2)(x \ominus 7)$

	<u>x</u>	<u>-7</u>
<u>x</u>	$x^2$	$-7x$
<u>2</u>	$2x$	$-14$

⑥  $x^2 - 9x + 14 = (x \ominus 2)(x \ominus 7)$

	<u>x</u>	<u>-7</u>
<u>x</u>	$x^2$	$-7x$
<u>-2</u>	$-2x$	$14$

⑦  $x^2 - 5x + 6 = (x \ominus 2)(x \ominus 3)$

	<u>x</u>	<u>-3</u>
<u>x</u>	$x^2$	$-3x$
<u>-2</u>	$-2x$	$6$



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