Virtual Learning

HS Essential Math

Unit 10

Lesson 3
Factoring

April 14, 2020

Essentials Math 4
Lesson: April 14, 2020

Learning Target:

I can use the area model to factor trinomials. (a = 1)

Essential Math 4

Watch the video about how to factor using an area model.

Try the practice problem below:

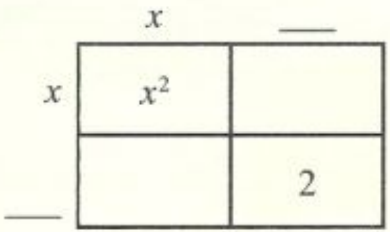
$$x^2 + 6x + 9$$

Essential Math 4

Practice Problems: Unit 10 Lesson 3 page 12

Complete the model and finish Jay's thought.

(14) $x^2 + 3x + 2 = (\quad)(\quad)$



Thinking out Loud

Jay: I can tell from the equation that I need a pair of numbers whose product is 2 and whose sum is ___. The numbers are ___ and ___ so the factors must be _____ and _____.

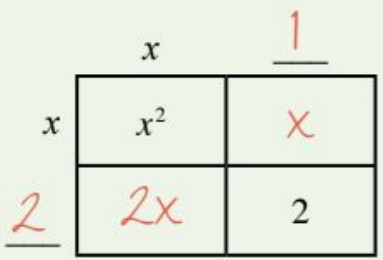
Essential Math 4

Answer Key:

Once you have completed the problems, check your answers for page 13 here.

Complete the model and finish Jay's thought.

(14) $x^2 + 3x + 2 = (\ x+1\ )(\ x+2\ )$



Thinking out Loud

Jay: I can tell from the equation that I need a pair of numbers whose product is 2 and whose sum is 3. The numbers are 1 and 2 so the factors must be x+1 and x+2.

Essential Math 4

Practice Problems: Unit 10 Lesson 3 page 13

(15) List all the *pairs* of integers (positive or negative) whose product is 30.

(16) Which pair has a sum of 11?

(17) Which pair has a sum of -13?

(18) Which pair has a sum of 31?

(19) Which pair has a sum of -17?

Essential Math 4

Answer Key:

Once you have completed the problems, check your answers for page 13 here.

(15) List all the *pairs* of integers (positive or negative) whose product is 30.

1 • 30 2 • 15 3 • 10 5 • 6
-1 • -30 -2 • -15 -3 • -10 -5 • -6

(16) Which pair has a sum of 11? 5 and 6

(17) Which pair has a sum of -13? -3 and -10

(18) Which pair has a sum of 31? 1 and 30

(19) Which pair has a sum of -17? -2 and -15

Essential Math 4

Practice Problems: Unit 10 Lesson 3 page 13

Use an area model to factor. Complete each model and equation.

(20) $x^2 + 11x + 30 =$ _____

	x	___
x	x^2	
___		30

(21) $x^2 - 13x + 30 =$ _____

	x	___
x	x^2	
___		30

Essential Math 4

Answer Key:

Once you have completed the problems, check your answers for page 13 here.

Use an area model to factor. Complete each model and equation.

20 $x^2 + 11x + 30 =$ $(x + 5)(x + 6)$

	x	5
x	x^2	$5x$
6	$6x$	30

(Factors can be written in either order.)

21 $x^2 - 13x + 30 =$ $(x - 3)(x - 10)$

	x	-3
x	x^2	$-3x$
-10	$-10x$	30

Essential Math 4

Practice Problems: Unit 10 Lesson 3 page 12

(22) $x^2 + 31x + 30 =$ _____

	x	___
x	x^2	
___		30

(23) $x^2 - 17x + 30 =$ _____

	x	___
x	x^2	
___		30

Answer Key:

Once you have completed the problems, check your answers for page 13 here.

(22) $x^2 + 31x + 30 =$ (x + 1)(x + 30)

	x	30
x	x^2	30x
1	x	30

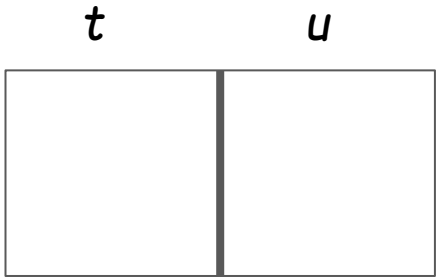
(23) $x^2 - 17x + 30 =$ (x - 2)(x - 15)

	x	-2
x	x^2	-2x
-15	-15x	30

Solving a "who am I":

Clues:

1. t + u = 11
2. tu = 24
3. u > t



Step 1: Find the pairs that add up to 11:

1, 10 won't work because 10 is 2 digits.
2, 9
3, 8
4, 7
5, 6

Step 2: Which of these pairs multiply and give you 24? 3, 8

Step 3: If u is greater than t, then the number should be 38

Essential Math 4

Practice Problems: Unit 10 Lesson 3 page 13

24 Who Am I?

- $t + u = 10$
- $tu = 21$
- $t > u$

25 Who Am I?

- $t + u = 10$
- $tu = 25$

26 Who Am I?

- $t + u = 11$
- $tu = 30$
- $u > t$

27 Who Am I?

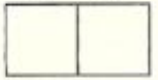
- $t + u = 12$
- $tu = 36$

28 Who Am I?

- $t + u = 11$
- $tu = 24$
- $t < u$

29 Who Am I?

- $tu = 81$
- $t + u = 18$



Essential Math 4

Answer Key:

Once you have completed the problems, check your answers for page 13 here.

24 Who Am I?

- $t + u = 10$
- $tu = 21$
- $t > u$

t	u
7	3

25 Who Am I?

- $t + u = 10$
- $tu = 25$

t	u
5	5

26 Who Am I?

- $t + u = 11$
- $tu = 30$
- $u > t$

t	u
5	6

27 Who Am I?

- $t + u = 12$
- $tu = 36$

t	u
6	6

28 Who Am I?

- $t + u = 11$
- $tu = 24$
- $t < u$

t	u
3	8

29 Who Am I?

- $tu = 81$
- $t + u = 18$

t	u
9	9

Essential Math 4

Resources were developed at EDC (Education Development Center, Inc).
EDC owns the copyright © 2011-2019

transition to algebra
make algebra make sense

Research-based National Science Foundation-funded

EDC Learning transforms lives.

firsthand HEINEMANN
Dedicated to Teachers™