Virtual Learning

Essential Math 4

Unit 11

Lesson 5: Area Models

May 19, 2020

Essentials Math 4
Lesson 5: May 19, 2020

Learning Target:
I can use area models to help write equations.

Essential Math 4

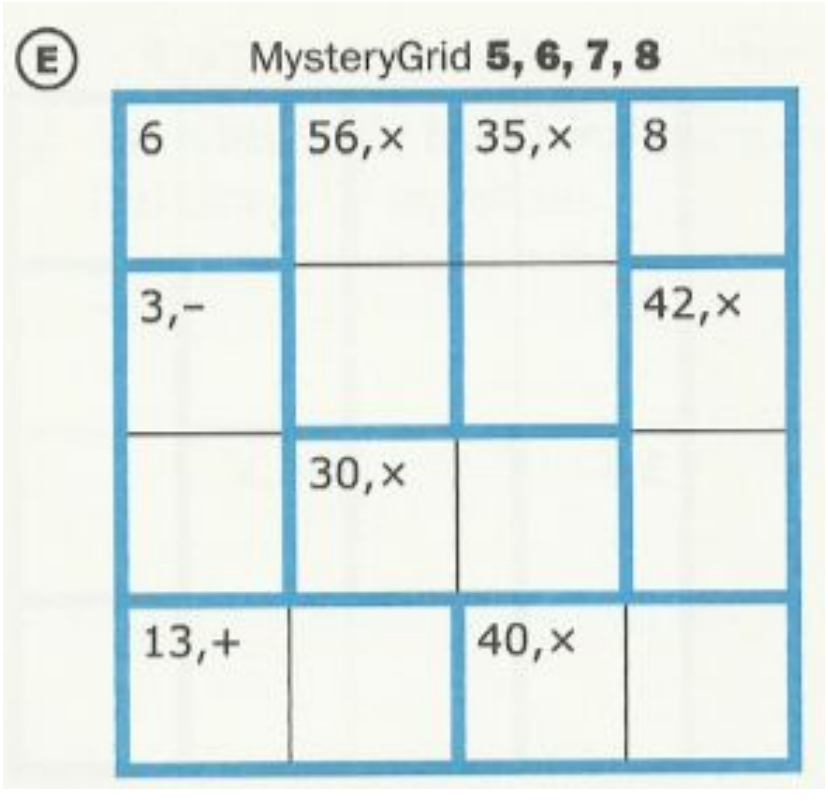
You will explore the use of multiplication and its relationship to exponents.

Directions:

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

Essential Math 4

Bell Work:
May 19, 2020



Essential Math 4

Bell Work Key
May 19, 2020

Ⓔ MysteryGrid **5, 6, 7, 8**

6 6	56,× 7	35,× 5	8 8
3,− 5	8	7	42,× 6
8	30,× 5	6	7
13,+ 7	6	40,× 8	5

Essential Math 4

Practice Problems: Unit 11 Lesson 5 page 21

10 Just as there is sometimes more than one way to factor an integer, there is sometimes more than one way to factor an expression.

Here's one way to factor $5h^4 + 25h^3$

	h^2	$5h$
$5h^2$	$5h^4$	$25h^3$

$5h^4 + 25h^3 = 5h^2(h^2 + 5h)$

Find another way.

	____	____
____	$5h^4$	$25h^3$

Can you find a third way? More?

Essential Math 4

Answer Key: After completing the problems, check your answers for page 21 here.

10 Just as there is sometimes more than one way to factor an integer, there is sometimes more than one way to factor an expression.

Here's one way to factor $5h^4 + 25h^3$

	h^2	$5h$
$5h^2$	$5h^4$	$25h^3$

$5h^4 + 25h^3 = 5h^2(h^2 + 5h)$

(One possible response shown.)

Find another way.

	$5h$	25
h^3	$5h^4$	$25h^3$

$5h^4 + 25h^3 = h^3(5h + 25)$

Can you find a third way? More?

Other common factors include $5h^3$, h, $5h$, $-h^2$, etc.

Essential Math 4

Practice Problems: Unit 11 Lesson 5 page 21, # 11-12

Complete the area model and write an equation using multiplication. There may be more than one correct answer. Find one.

(11)

	$4n^5$	$12n^7$

$4n^5 + 12n^7 =$

(12)

	$2y^6$	$8y^{10}$	$10y^7$

Essential Math 4

Answer Key: After completing the problems, check your answers for page 21 here.

Complete the area model and write an equation using multiplication. There may be more than one correct answer. Find one.

(11)

	1	$3n^2$
$4n^5$	$4n^5$	$12n^7$

Other common factors include $4n^4$, $4n^3$, n^2, -4, n, $2n^5$, $2n$, etc.

$4n^5 + 12n^7 = 4n^5(1 + 3n^2)$

(12)

	1	$4y^4$	$5y$
$2y^6$	$2y^6$	$8y^{10}$	$10y^7$

Other common factors: $2y^5$, $2y^4$, y^3, 2, etc.

$2y^6(1 + 4y^4 + 5y) = 2y^6 + 8y^{10} + 10y^7$

Essential Math 4

Practice Problems: Unit 11 Lesson 5 page 21, # 13-14

Complete the area model and write an equation using multiplication. There may be more than one correct answer. Find one.

(13)

	c^{10}	$2c^5$
	$9c^5$	18

$c^{10} + 11c^5 + 18 =$

(14)

	m^6	$-8m^3$
	$5m^3$	

Essential Math 4

Answer Key:

After completing the problems, check your answers for page 21 here.

13

	c^5	2
c^5	c^{10}	$2c^5$
9	$9c^5$	18

$c^{10} + 11c^5 + 18 = (c^5 + 2)(c^5 + 9)$

14

	m^3	-8
m^3	m^6	$-8m^3$
5	$5m^3$	-40

$m^6 - 3m^3 - 40 = (m^3 + 5)(m^3 - 8)$

Essential Math 4

Practice Problems: Unit 11 Lesson 5 page 21, # 15-16

15

	p^{10}	6
____		$6p^{10}$
____	$7p^{10}$	

16

	x^8	____
____	x^{16}	
-8		-32

Essential Math 4

Answer Key: After completing the problems, check your answers for page 21 here.

15

	p^{10}	6
p^{10}	p^{20}	$6p^{10}$
7	$7p^{10}$	42

$p^{20} + 13p^{10} + 42 = (p^{10} + 6)(p^{10} + 7)$

16

	x^8	4
x^8	x^{16}	$4x^8$
-8	$-8x^8$	-32

$x^{16} - 4x^8 - 32 = (x^8 + 4)(x^8 - 8)$

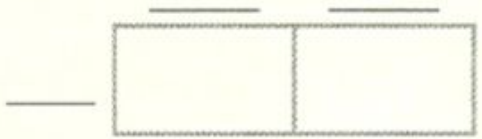
Essential Math 4

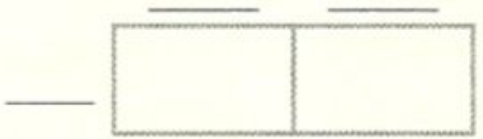
Practice Problems: Unit 11 Lesson 5 page 21, # 17-18

(17) Use area models to show that the following are equivalent expressions:

$4a(4a^4 + 10a)$

$8a^3(2a^2 + 5a^{-1})$





(18) Find one more multiplication expression equivalent to $4a(4a^4 + 10a)$ and $8a^3(2a^2 + 5a^{-1})$.

There's more than one possible answer.

Essential Math 4

Answer Key: After completing the problems, check your answers for page 21 here.

(17) Use area models to show that the following are equivalent expressions:

$4a(4a^4 + 10a)$

$8a^3(2a^2 + 5a^{-1})$

	$4a^4$	$10a$
$4a$	$16a^5$	$40a^2$

	$2a^2$	$5a^{-1}$
$8a^3$	$16a^5$	$40a^2$

They are both equivalent to $16a^5 + 40a^2$.

(18) Find one more multiplication expression equivalent to $4a(4a^4 + 10a)$ and $8a^3(2a^2 + 5a^{-1})$.

There's more than one possible answer.

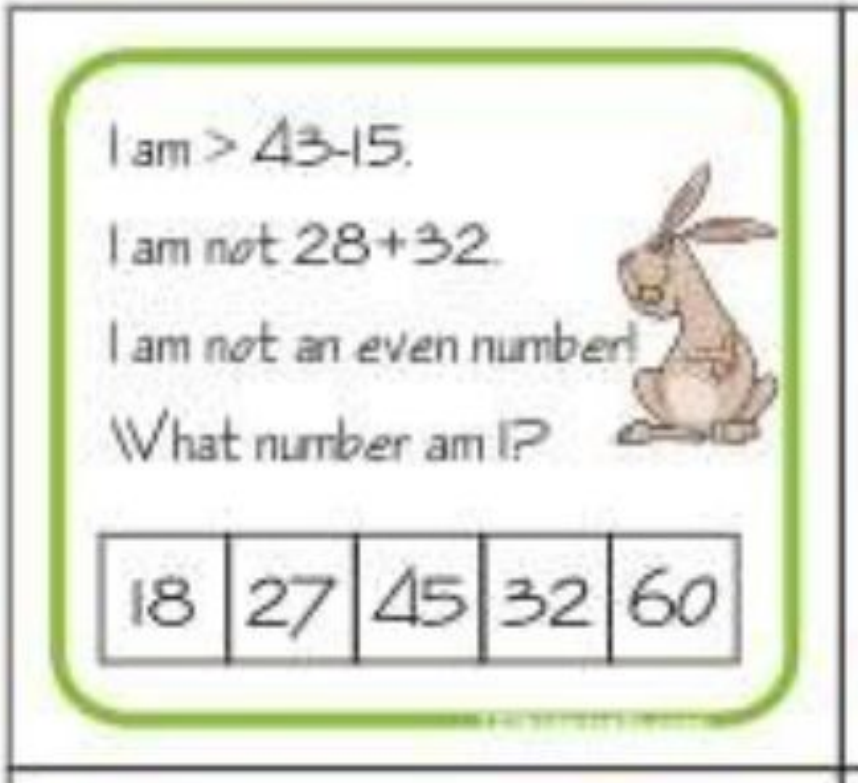
	$2a^3$	5
$8a^2$	$16a^5$	$40a^2$

$16a^5 + 40a^2 = 8a^2(2a^3 + 5)$

Other common factors: $2a^2$, $4a^2$, a, 8, etc.

Essential Math 4

Fun Stuff:



Fun Stuff Answer: 45

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™