



Essential Math 4

Unit 10 Lesson 1: April 7

Learning Target:

I can use the area model to multiply

Let's Get Started:

[Watch Video](#): Multiplying with the Area Model

Bell Work April 7, 2020

Draw an area model for each of the following:

1. $3(5y + 2)$

2. $2r(3r + 4)$

Practice:

Go to this website:

[Multiplying with the area model](#)

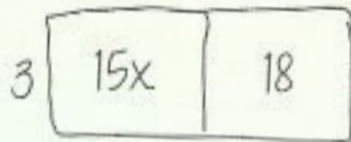
1. Review and solve the problem on [Multiplying with the area model](#)
2. Like terms are terms that have the same variables raised to the same powers. To add like terms, add their coefficients.
3. Work through the problem and steps below

Multiply the numbers below
using an area model:

$$5x(4x + 5)$$

Complete problems 11 - 19 on a sheet of paper. The answer key is on slides 6 and 7 to check when you are done.

- 11 Paulo drew this model and wrote this paragraph to describe his thinking. Complete his work.



If we divide an expression, like $15x + 18$, by one of its factors, like 3 , then we will get the other factor in that pair, _____.

And if we multiply those two factors, 3 and _____, then we will get back the expression that we started with, _____.

Three of the models in problems 12–15 represent the same problem.

Complete all of these models. Then cross out the model that represents a different problem.

12

	$3x$	-7
2		

13

2	$6x$	-14

14

	$6x$	-14
2		

15

	$3x$	-7
	$6x$	-14

Complete the equations in problems 16–19.
Match each equation to the model from problems 12–15 that best represents the same calculation.

Then cross out the equation that doesn't represent the same relationship as the other three.

16 $2(3x - 7) =$

matches problem ____

17 $2(6x - 14) =$

matches problem ____

18 $\frac{6x - 14}{2} =$

matches problem ____

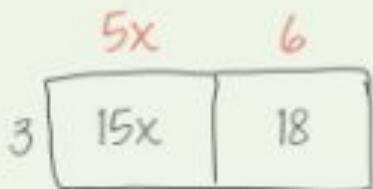
19 $\frac{6x - 14}{3x - 7} =$

matches problem ____

Answer Key:

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

- 11 Paulo drew this model and wrote this paragraph to describe his thinking. Complete his work.



If we divide an expression, like $15x + 18$, by one of its factors, like 3 , then we will get the other factor in that pair, $5x + 6$. And if we multiply those two factors, 3 and $5x + 6$, then we will get back the expression that we started with, $15x + 18$.

Answer Key:

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

Three of the models in problems 12-15 represent the same problem.

Complete all of these models. Then cross out the model that represents a different problem.

12

	$3x$	-7
2	$6x$	-14

13

	$3x$	-7
2	$6x$	-14

14

	$6x$	-14
2	$12x$	-28

15

	$3x$	-7
2	$6x$	-14

Complete the equations in problems 16-19.

Match each equation to the model from problems 12-15 that best represents the same calculation.

Then cross out the equation that doesn't represent the same relationship as the other three.

16 $2(3x - 7) = 6x - 14$

matches problem 12

~~17 $2(6x - 14) = 12x - 28$~~

matches problem 14

18 $\frac{6x - 14}{2} = 3x - 7$

matches problem 13

19 $\frac{6x - 14}{3x - 7} = 2$

matches problem 15

Extra Practice Problems

Use the area model to divide. Then write an equation with multiplication or division that is represented by the model.

20. $3w$

$3w^2$	$-18w$
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$$\frac{3w^2 - 18w}{3w} =$$

22.

k	4
k^2	$4k$
$-9k$	-36

$$\frac{k^2 - 5k - 36}{\square} = k + 4$$

21.

$2j^2$	$4j$	-8
$14j^2$	$28j$	-56

$$\underline{\hspace{2cm}} (2j^2 + 4j - 8) = 14j^2 + 28j - 56$$

23.

a	ax	$3ay$
$2b$	$2bx$	$6by$

$$(a + 2b)(\quad) = ax + 3ay + 2bx + 6by$$

Answer Key:

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

Use the area model to divide. Then write an equation with multiplication or division that is represented by the model.

20

	<u>W</u>	<u>-6</u>
3w	3w ²	-18w

$$\frac{3w^2 - 18w}{3w} = \underline{W - 6}$$

21

	<u>2j²</u>	<u>4j</u>	<u>-8</u>
<u>7</u>	14j ²	28j	-56

$$\underline{7} (2j^2 + 4j - 8) = \underline{14j^2 + 28j - 56}$$

22

	<u>k</u>	<u>4</u>
<u>k</u>	k ²	4k
<u>-9</u>	-9k	-36

$$\frac{k^2 - 9k - 36}{k - 9} = k + 4$$

(Responses will vary based on operation chosen.)

23

	<u>x</u>	<u>3y</u>
a	ax	3ay
2b	2bx	6by

$$(a + 2b)(x + 3y) = ax + 3ay + 2bx + 6by$$