



Math Virtual Learning

HS/Essential Math II

May 12, 2020



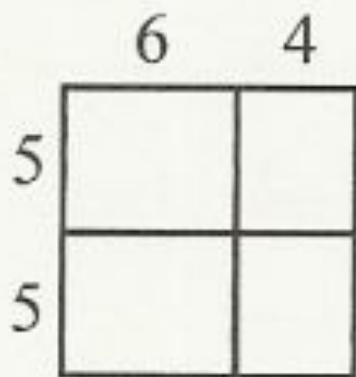
High School/Essential Math 2
Lesson: May 12, 2020
(U4L5 Part I)

Objective/Learning Target:

Use area model thinking to apply the distributive property to multiplication problems & Translate between symbolic expressions & area models.

LAUNCH: Let's go!

Which of these expressions go with this diagram?
Circle all that apply.



A $(5 + 5)(6 + 4)$

B $30 + 20 + 30 + 20$

C $(6 + 5)(4 + 5)$

Which of these expressions go with this diagram?
Circle all that apply.

	6 + 4	
5	30	20
+		
5	30	20

(A) $(5 + 5)(6 + 4)$

(B) $30 + 20 + 30 + 20$

(C) $(6 + 5)(4 + 5)$

ANSWERS to LAUNCH

① $2 \cdot 43 = 2(40 + 3) = \underline{\hspace{2cm}}$

40	3
2	80

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

4x	3
2	8x

③ $3(x + 2) = 3x +$

	x	2
3	3x	

④ $(y + 3)(x + 2) = xy + 2y + \quad + 6$

	x	2
y	xy	2y
3		

The times sign (\times) looks like an x . So in algebra, we use \cdot or nothing at all. $3x$ is the same as $3 \cdot x$ and $3 \times x$.

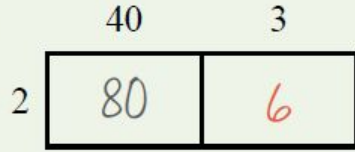
The structure of the model depends on the number of terms in each factor. We can rely on the structure of the area model to organize the calculation even if the values being multiplied are unknown (like x or b).

Lesson

Numbers along the side are factor addends.

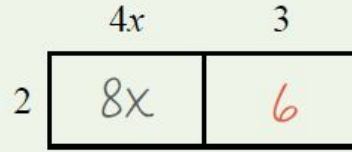
Numbers within the same parentheses go on the same side.

①



$$2 \cdot 43 = 2(40 + 3) = \underline{86}$$

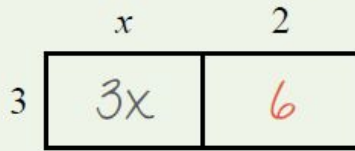
②



$$2(4x + 3) = \underline{8x + 6}$$

③

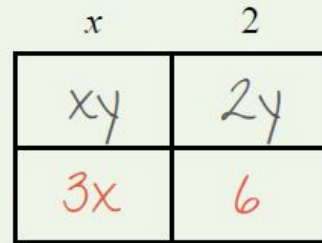
$$3(x + 2) = 3x + 6$$



Same
parentheses,
same side

④

$$(y + 3)(x + 2) = xy + 2y + 3x + 6$$

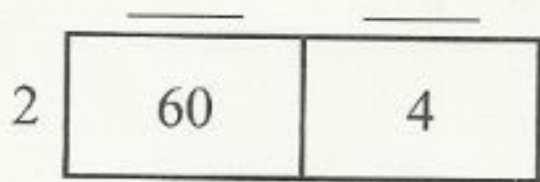


The times sign (\times) looks like an x. So in algebra, we use \cdot or nothing at all. $3x$ is the same as $3 \cdot x$ and $3 \times x$.

The structure of the model depends on the number of terms in each factor. We can rely on the structure of the area model to organize the calculation even if the values being multiplied are unknown (like x or b).

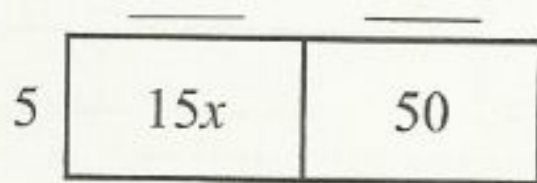
Lesson

26



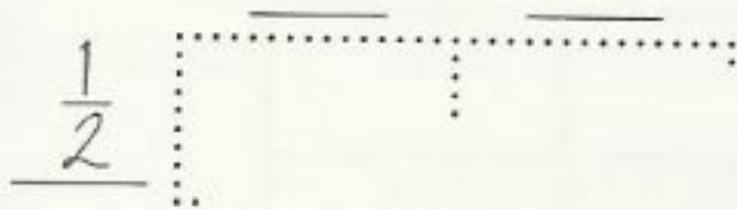
$$2(\underline{\quad\quad}) = 64$$

27



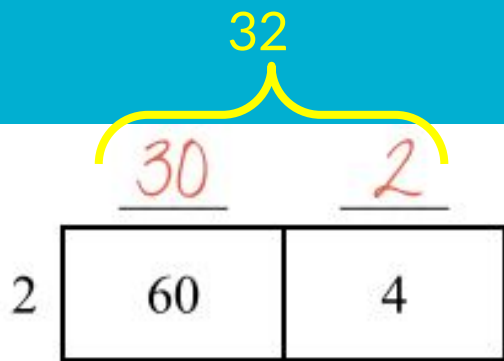
$$5(\underline{\quad\quad} + \underline{\quad\quad}) = 15x + 50$$

29 $\frac{1}{2}(8x + 18) = \underline{\hspace{2cm}}$



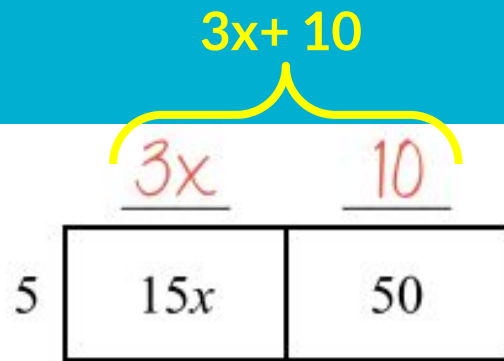
Stuff to
Make You
Think

26



$$2(\underline{32}) = 64$$

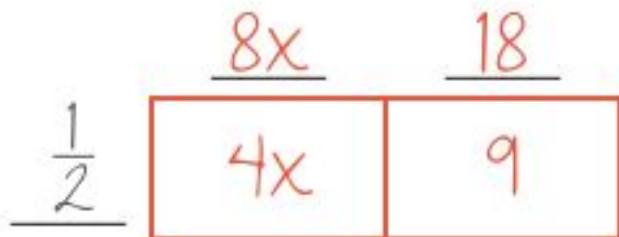
27



$$5(\underline{3x} + \underline{10}) = 15x + 50$$

Answers
Stuff to
Make You
Think

$$\textcircled{29} \quad \frac{1}{2}(8x + 18) = \underline{4x + 9}$$



Additional Practice

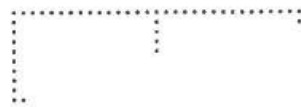
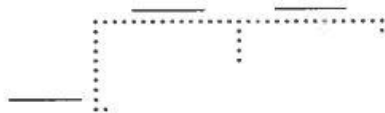
Additional Practice

Draw an area model and use it to multiply.

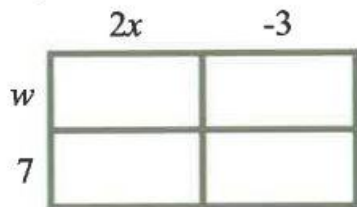
(A) $10(2x + 4) =$ _____

(B) $3(4b + 8) =$ _____

(C) $a(3n + 6) =$ _____



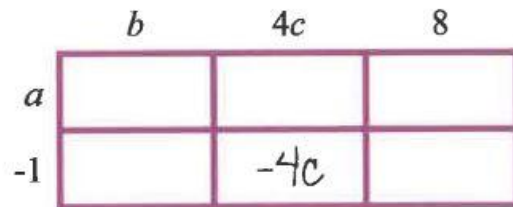
- (D) What are the factors in this model?
What is the product?



(_____) (_____) =

$2wx +$

- (E) What are the factors in this model?
What is the product?



(_____) (_____) =

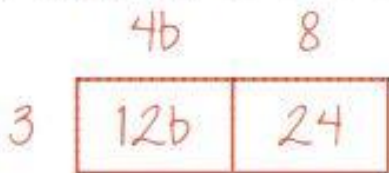
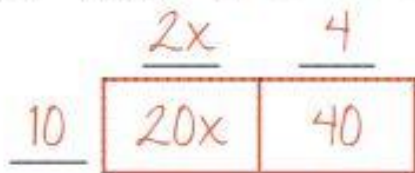
Additional Practice

Draw an area model and use it to multiply.

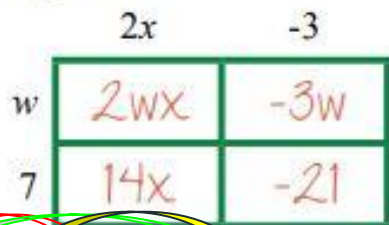
A $10(2x + 4) = \underline{20x + 40}$

B $3(4b + 8) = \underline{12b + 24}$

C $a(3n + 6) = \underline{3an + 6a}$

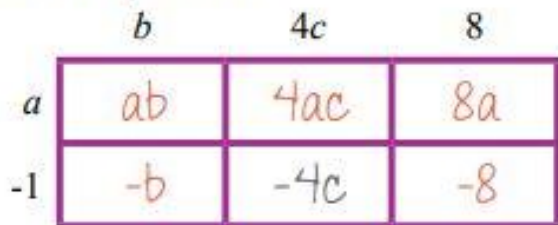


- D** What are the factors in this model?
What is the product?



$(w + 7)(2x - 3) =$
 $\underline{2wx + -3w + 14x - 21}$

- E** What are the factors in this model?
What is the product?



$(a - 1)(b + 4c + 8) =$
 $\underline{ab - b + 4ac - 4c + 8a - 8}$

Today you learned to use area model thinking to apply the distributive property to multiplication problems and to translate between symbolic expressions and area models

For additional practice, click the link: [Solve Me Mystery Grids](#)