3 Develop the Concept: Visual

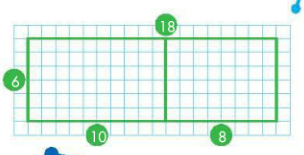
ELL STRATEGY Visual Learning

Visual Learning

Distributive Property

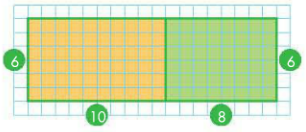
How can you use the Distributive Property to write expressions and solve equations?

What expressions can you write to represent the number of square units inside the rectangle?



What does the figure show? [A rectangle with two parts] *What are the dimensions of the rectangle?* [6 rows by 18 columns] *What are the dimensions of each of the parts?* [6 rows by 10 columns; 6 rows by 8 columns]

Three ways to find the number of square units:
1) Think of 6 rows with 18 in each row. **6 × 18**
2) Think of 18 as 10 + 8. **6 × (10 + 8)**
3) Think of the figure in two parts.
The orange part has 6 × 10 square units.
The green part has 6 × 8 square units.



The total is the sum of the two parts. **(6 × 10) + (6 × 8)**

1 Visual Learning

Set the Purpose Call students' attention to the **Visual Learning Bridge** at the top of the page. *In this lesson, you will learn ways to use the Distributive Property to evaluate expressions easier and faster.*

DIGITAL **Animated Glossary** Students can see highlighted words defined in the Online Student Edition.
Distributive Property
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2 Guided Practice

Formative Assessment

Remind students to break the number being multiplied into two parts, such as breaking 18 into 10 and 8.

Exercise 2
Error Intervention

If students need help finding the product,

then ask: *How can you break 105 into two numbers that are easier to multiply by 4?* [100 and 5]

Reteaching Use the Distributive Property to find the product of 48 × 5. For another example and more practice, assign **Reteaching** Set D on p. 167.

3 Independent Practice

In Exercise 7, remind students that after a number is broken apart, they must perform the same operation on each part of the number. *After 509 is broken into 500 and 9, what do you do next?* [Multiply both numbers by 11.]

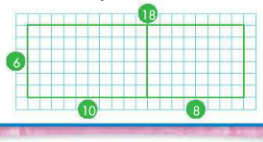
Lesson 6-4

Understand It! The distributive property breaks numbers apart so they are easier to multiply.

Distributive Property

How can you use the distributive property to write expressions and solve equations?

What expressions can you write to represent the number of square units inside the rectangle?



Guided Practice*

Do you know HOW?

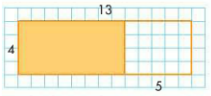
1. Use the distributive property to complete the equation.
$12 \times 308 = 12 \times (\square + 8)$ **300**
$= (12 \times \square) + (\square \times 8)$ **300; 12**
$= \square + \square$ **3,600; 96**
$= \square$ **3,696**

2. Show how you can use the distributive property to find the product of 4×105.
See margin.

3. Show how you can use the distributive property to find the product of 20×32.
See margin.

Do you UNDERSTAND?

4. Do these expressions name the same number of square units in the shaded area?
$4 \times (13 - 5)$ and $(4 \times 13) - (4 \times 5)$



Yes, both equal 32.

5. Write the distributive property to state that multiplication distributes over subtraction.
See margin.

6. **Writing to Explain** Is $20 - (4 \times 2) = (20 - 4) \times (20 - 2)$? Explain your answer.
See margin.

Independent Practice

Use the distributive property to complete each equation.

7. $509 \times 11 = (500 + 9) \times 11$
$= (500 \times \square) + (9 \times \square)$ **11; 11**
$= \square + 99$ **5,500**
$= \square$ **5,599**

8. $12 \times 47 = 12 \times (50 - \square)$ **3**
$= (12 \times \square) - (12 \times 3)$ **50**
$= 600 - \square$ **36**
$= \square$ **564**

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2. $4 \times 105 = (4 \times 100) + (4 \times 5) = 400 + 20 = 420$
3. $20 \times 32 = (20 \times 30) + (20 \times 2) = 600 + 40 = 640$
5. $a \times (b - c) = (a \times b) - (a \times c)$
6. No; By doing operations inside parentheses, you can see that $20 - 8$ is not equal to 16×18.