ALBERT

Name _____ Date _____

Area Models and the Distributive Property Worksheet

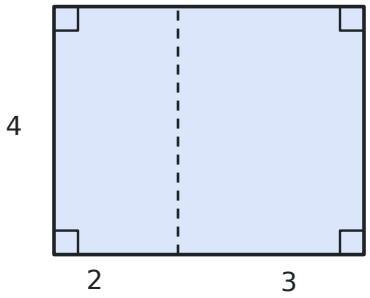
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> Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning.

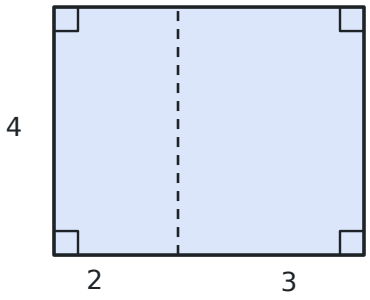
Practice

Builds the skill step by step.

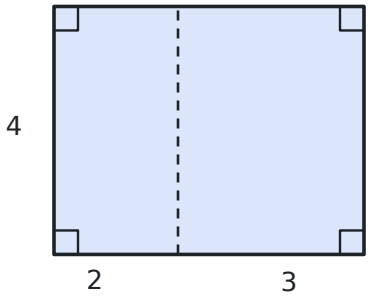
1. The rectangle is split into two parts. What is the area of the left part?



2. The rectangle is split into two parts. What is the area of the right part?



3. The rectangle is split into two parts. What is the area of the whole rectangle?



4. A rectangle is 3 units tall and 7 units wide. It is split into a 3-by-5 part and a 3-by-2 part. Which shows its area?

   A. $3 \times 5 \times 2$

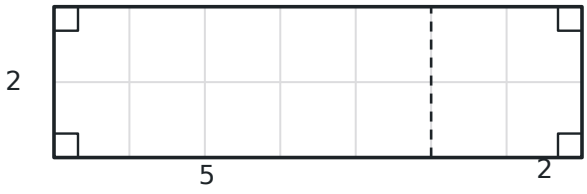
   B. $3 + 5 + 2$

   C. $3 \times 5 + 3 \times 2$

   D. $5 \times 2 + 3$

5. $3 \times 7 = 3 \times 5 + 3 \times 2$. What is $3 \times 5 + 3 \times 2$?

6. The rectangle is split into two parts. What is the area of the whole rectangle?



7. Which is equal to 4×8?

   A. $4 \times 5 + 3$

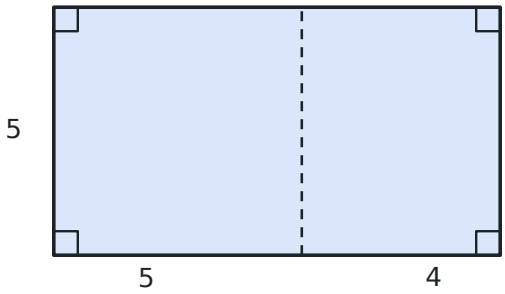
   B. $4 \times 5 + 4 \times 3$

   C. $4 + 5 + 3$

   D. $4 \times 5 \times 3$

8. Complete the equation: $6 \times 7 = 6 \times 5 + 6 \times ___$

9. Use the split rectangle. What is 5×9?



10. $2 \times 9 = 2 \times 5 + 2 \times 4$. What is 2×9?

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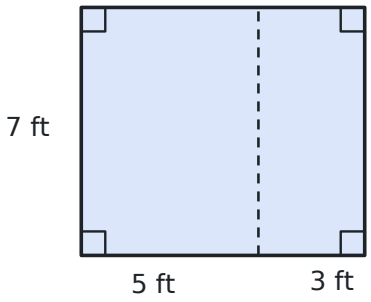
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On Level

Grade-level practice.

1. The rectangle is split into two parts. What is the area of the whole rectangle?



2. Which split rectangle shows 6 × 9?

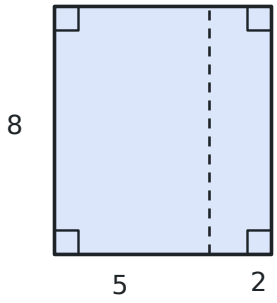
   A. A 6-by-5 part and a 3-by-4 part

   B. A 6-by-9 part and a 6-by-4 part

   C. A 5-by-4 part and a 6-by-6 part

   D. A 6-by-5 part and a 6-by-4 part

3. Use the split rectangle to find 8 × 7.



4. Complete the equation: 7 × 6 = 7 × 4 + 7 × ___

5. A rectangle is 4 meters wide and 9 meters long. Lina splits the length into 5 meters and 4 meters. What are the areas of the two parts? Write the 5-meter part first.

6. What is the area of the whole rectangle from the last problem, with sides 4 meters and 9 meters? Use the two parts.

7. Kai knows 3 × 5 = 15 and 3 × 3 = 9. Which fact can he find by adding them?

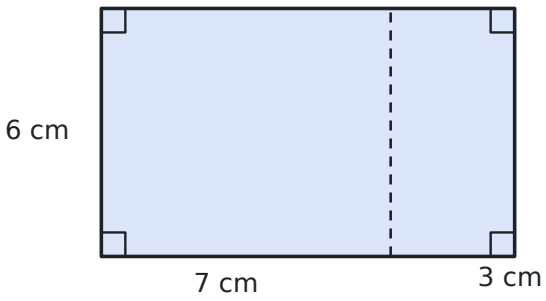
   A. 3 × 15 = 45

   B. 6 × 8 = 48

   C. 3 × 8 = 24

   D. 3 × 2 = 6

8. The rectangle is split into two parts. What is the area of the whole rectangle?



9. Break 9 × 8 into 9 × 5 + 9 × 3. What is 9 × 8?

10. Complete the equation: 4 × 9 = 4 × ___ + 4 × 4

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Challenge

Multi-step and word problems that stretch it.

1. A rectangle is 7 units tall and 12 units wide. Split it into a 7-by-10 part and a 7-by-2 part. What is its area?

2. Sam says $5 \times 9 = 5 \times 5 + 4$ because $9 = 5 + 4$. What mistake did he make?

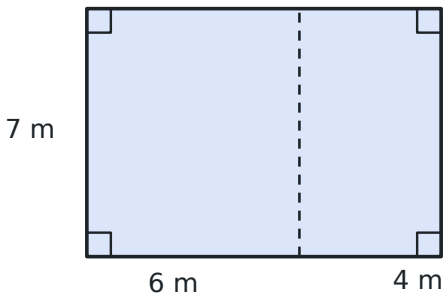
   A. He should add $5 + 9$ instead.

   B. He needs to multiply 4 by 5 too: $5 \times 5 + 5 \times 4$.

   C. He should split 5, not 9.

   D. There is no mistake.

3. The rectangle is split into two parts. What is the area of the whole rectangle?



4. A floor is 8 feet wide and 13 feet long. Split 13 into 10 and 3. What is the area of the floor?

5. Which is NOT equal to 6 × 8?

   A. 6 × 5 + 6 × 3

   B. 6 × 4 + 6 × 4

   C. 6 × 6 + 6 × 2

   D. 6 × 4 + 6 × 3

6. A rectangle is split into a 4-by-6 part and a 4-by-3 part. One side of the whole rectangle is 4. How long is the other side, and what is the area? Write the side length first.

7. Complete the equation: 8 × 9 = 8 × 5 + 8 × ___ = ___. Write the two missing numbers in order.

8. Which rectangle has the same area as a 7-by-5 rectangle and a 7-by-4 rectangle put together?

   A. 7 by 9

   B. 7 by 20

   C. 14 by 9

   D. 7 by 1

9. A garden is 6 meters wide and 11 meters long. Ana splits 11 into 10 and 1. What is the area of the garden?

10. The rectangle is split into two parts. What is the area of the right part?

