LESSON MAKER PRO

Split and Add Areas

Use smaller rectangles to find one whole area.

GRADE 3 · 3.MD.C.7c

CCSS.Math.Content.3.MD.C.7c "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."

NAME _____ DATE _____

THE BIG IDEA

A rectangle can be split into smaller rectangles. The areas of the smaller rectangles add to make the whole area: a x (b + c) = (a x b) + (a x c).

WORKED EXAMPLE

A rectangle is 6 units tall and 5 + 2 units wide. Find its area by splitting it into two rectangles.

1. Split the width into 5 units and 2 units.
2. Find each part: 6 x 5 = 30 and 6 x 2 = 12.
3. Add the parts: 30 + 12 = 42.

Answer: 42 square units; 6 x (5 + 2) = (6 x 5) + (6 x 2).

PRACTICE 6 problems

1 A rectangle is 3 units by 4 + 8 units. Find the area by splitting the rectangle.

ANSWER _____

2 A rectangle is 9 units long and 3 + 4 units wide. What is the area of each smaller rectangle? What is the total area?

ANSWER _____

3 Complete the equation: 8 x (1 + 9) = (__ x __) + (__ x __) = __

ANSWER _____

4 Find the area by splitting: 4 x (10 + 3).

ANSWER _____

5 A rectangle has side lengths 11 units and 4 + 3 units. Find its total area.

ANSWER _____

6 Write a split-area equation for 9 x (8 + 4), then find the area.

ANSWER _____

APPLY IT Show your work

1 The school art club is making a poster wall. It has 8 rows of picture squares. Each row has 4 blue squares and 9 green squares. How many picture squares fit on the wall? Show the two smaller areas and their sum.

WORK SPACE

ANSWER _____

2 Jay is filling a trading-card display. It has 3 rows. Each row has 11 card spaces on one side of a divider and 4 card spaces on the other side. How many cards fit in the display?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A game-room floor is 12 units long. Its width is split into 3 units, 8 units, and 4 units. Find the total area. Explain in 1 or 2 sentences why adding the three smaller areas works.

_____

_____

ANSWER KEY

Split and Add Areas

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A rectangle is 3 units by 4 + 8 units. Find the area by splitting the rectangle.	**36 square units; 3 x (4 + 8) = (3 x 4) + (3 x 8) = 12 + 24.**
2	A rectangle is 9 units long and 3 + 4 units wide. What is the area of each smaller rectangle? What is the total area?	**27 square units and 36 square units; total area = 63 square units.**
3	Complete the equation: 8 x (1 + 9) = (__ x __) + (__ x __) = __	**8 x (1 + 9) = (8 x 1) + (8 x 9) = 80.**
4	Find the area by splitting: 4 x (10 + 3).	**52 square units; (4 x 10) + (4 x 3) = 40 + 12.**
5	A rectangle has side lengths 11 units and 4 + 3 units. Find its total area.	**77 square units; (11 x 4) + (11 x 3) = 44 + 33.**
6	Write a split-area equation for 9 x (8 + 4), then find the area.	**9 x (8 + 4) = (9 x 8) + (9 x 4) = 72 + 36 = 108 square units.**

PART 2 · APPLY IT

1. **104 picture squares; (8 x 4) + (8 x 9) = 32 + 72 = 104.** Multiply 8 rows by each part of the row. Add 32 and 72.
2. **45 cards; (3 x 11) + (3 x 4) = 33 + 12 = 45.** Find the area of each side of the divider. Add 33 card spaces and 12 card spaces.

CHALLENGE

180 square units. 12 x 3 + 12 x 8 + 12 x 4 = 36 + 96 + 48 = 180, and the three tiled parts fill the whole rectangle.

Accept equivalent split equations that multiply the shared side length by each width part and then add. Accept correct area labels, including square units, picture squares, or cards where appropriate.