LESSON MAKER PRO

Split It, Add It

Use tile arrays to find rectangle area.

GRADE 3 · NY-3.MD.7.c

NY-3.MD.7.c "Use tiling to show in a concrete case that the area of a rectangle with whole-number side length a and side length b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning."

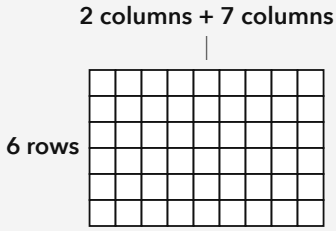
NAME _____ DATE _____

SPLIT RECTANGLE AREAS

When a rectangle is split into two smaller rectangles, add the two areas. Multiply the shared side length by each part of the other side, then add.

WORKED EXAMPLE

Use the tile array. Find its total area.



1. Find the first part: 6 x 2 = 12.
2. Find the second part: 6 x 7 = 42.
3. Add the parts: 12 + 42 = 54.

Answer: 54 square units

PRACTICE 4 problems

1 Find the area: 8 x (3 + 5) = (8 x 3) + (8 x 5) = ___

ANSWER _____

2 Find the area: 9 x (4 + 1) = ___

ANSWER _____

3 Fill in the blank: 5 x (8 + 1) = (5 x 8) + (5 x 1) = ___

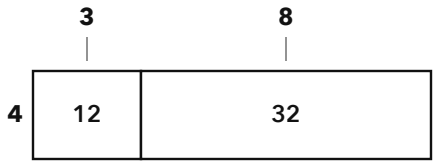
ANSWER _____

4 A rectangle is 3 units by (9 + 4) units. What is its area?

ANSWER _____

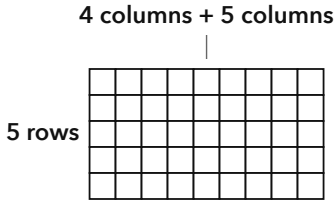
APPLY IT Show your work

1 The game-board model shows two rectangles side by side. How many square spaces are on the whole board?



ANSWER _____

2 The sticker-sheet array is shown. It has a 4-column part and a 5-column part. How many stickers fit on the sheet?



ANSWER _____

3 Your teacher gives you 15 identical square paper tiles. Make a rectangle in 3 rows of 5 tiles, edge to edge without gaps or overlaps. Put a pencil beside the boundary after column 2 to mark a split into 2 columns and 3 columns. Trace the rectangle and draw every tile boundary and the split. Count each part and write $3 \times (2 + 3) = (3 \times 2) + (3 \times 3)$. Explain why both methods give the whole area.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A classroom rug has 8 rows of tiles. It has 9 blue columns and 1 green column. Sam says 8 x (9 + 1) = (8 x 9) + (8 x 1). Is Sam correct? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Split It, Add It

GRADE 3 · NY-3.MD.7.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the area: 8 x (3 + 5) = (8 x 3) + (8 x 5) = ___	**64**
2	Find the area: 9 x (4 + 1) = ___	**45**
3	Fill in the blank: 5 x (8 + 1) = (5 x 8) + (5 x 1) = ___	**45**
4	A rectangle is 3 units by (9 + 4) units. What is its area?	**39 square units**

PART 2 · APPLY IT

1. **44 square spaces** Find each part: 4 x 3 = 12 and 4 x 8 = 32. Add 12 + 32 = 44.
2. **45 stickers** Multiply each part: 5 x 4 = 20 and 5 x 5 = 25. Add 20 + 25 = 45.
3. **3 × (2 + 3) = 6 + 9 = 15 square units.** Supply 15 identical square paper tiles, paper and a pencil. Observe an actual 3-by-5 tiled rectangle and a split after the second column. Check the recorded unit-grid model contains a 3-by-2 part (6 squares) and a 3-by-3 part (9 squares), with no lost or double-counted squares. The whole 3-by-5 rectangle has 15 squares; adding the two disjoint parts gives the same 15 square units.

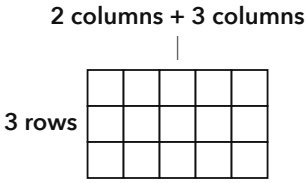
CHALLENGE

Yes. 8 x 9 = 72 and 8 x 1 = 8, so 72 + 8 = 80. Also, 8 x (9 + 1) = 8 x 10 = 80.

Accept area answers with or without the words square units or square spaces. Accept equivalent distributive equations and explanations that show both parts are added. Apply 3 requires actual tiling and a recorded split model, with count/product explanations for both parts and the whole.

Split It, Add It

Apply 3: whole unit-tile grid. Mark the split after column 2; the parts have 6 and 9 squares.



Apply 3: corresponding split-area model; 6 + 9 = 15 square units.

