

Grade 3 · Properties of Multiplication · Worksheet

Common Core 3.OA.B.5 · mathovore.fr

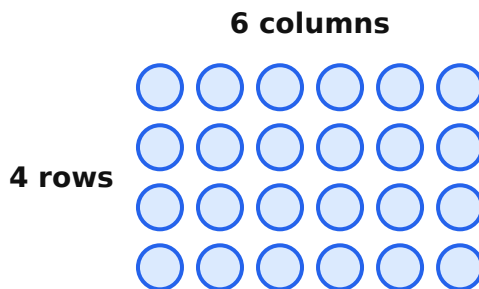
Name: _____ Date: ____/____/____ Score: _____

These 24 problems practice the three properties of multiplication from standard 3.OA.B.5. You will turn arrays, regroup factors, and split one factor to make a hard fact easier. The first problems are short and use pictures. The last six are word problems about school, markets, and gardens. Draw a picture whenever you get stuck.

Grade 3 Common Core: 3.OA.B.5

Problem 1: Turn-around facts

Write two multiplication sentences for this array.



An array with 4 rows and 6 columns.

Problem 2: Swap the factors

Find the missing number. $7 \times 3 = 3 \times ?$

Problem 3: Missing factor

Find the missing number. $? \times 5 = 5 \times 9$

Problem 4: Use a known fact

Maya knows that $6 \times 4 = 24$. Use the commutative property to find 4×6 .

Problem 5: Same product?

For each pair, tell whether the two products are the same or different.

- a. 6×4 and 4×6
- b. 7×5 and 5×7
- c. 8×3 and 8×4
- d. 9×2 and 3×6

Problem 6: Group three factors

Find the product both ways. $(2 \times 3) \times 4$ and $2 \times (3 \times 4)$.

$$\begin{array}{c} (2 \times 3) \times 4 \\ 2 \times (3 \times 4) \end{array}$$

Two ways to group the same three factors.

Problem 7: Missing number in a group

Find the missing number. $(3 \times 2) \times 5 = 3 \times (? \times 5)$

Problem 8: Choose a friendly group

Find $5 \times 2 \times 7$. Group two factors so that the first step is easy.

Problem 9: Three factors

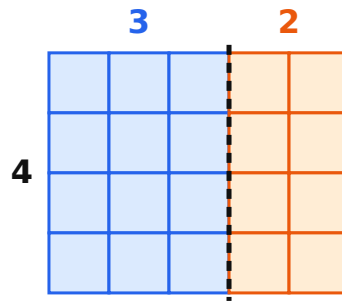
Find the product of $3 \times 2 \times 4$.

Problem 10: Two ways to group

Show that $(2 \times 3) \times 5$ and $2 \times (3 \times 5)$ have the same product.

Problem 11: Split into two parts

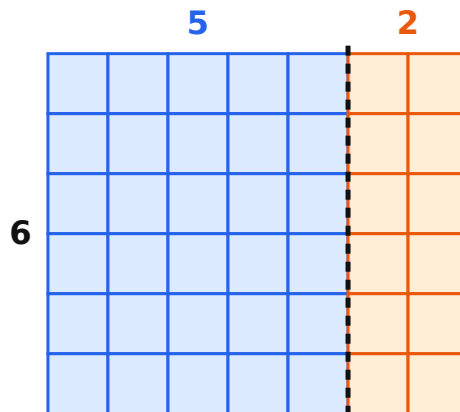
The rectangle has 4 rows. It is split into a part with 3 columns and a part with 2 columns. Write a multiplication sentence for each part. Then add to find all the squares.



A rectangle split into a left part (3 columns) and a right part (2 columns).

Problem 12: Break apart 7

Fill in the missing numbers. $6 \times 7 = 6 \times 5 + 6 \times ?$. Then find the product.



A 6 by 7 rectangle split into 5 columns and 2 columns.

Problem 13: Break apart 6

Find 8×6 by splitting 6 into 5 and 1.

Problem 14: Split into equal parts

Find 7×8 by splitting 8 into 4 and 4.

Problem 15: Break apart 9

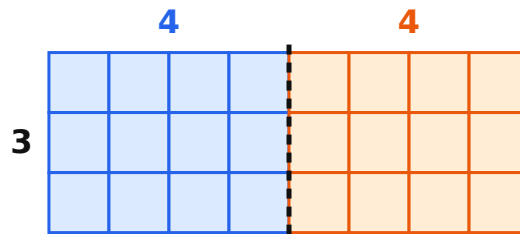
Find 7×9 by splitting 9 into 5 and 4.

Problem 16: Check both sides

Find the value of $5 \times (4 + 3)$ and the value of $5 \times 4 + 5 \times 3$. What do you notice?

Problem 17: Area model halves

Write the multiplication sentence for each half of the rectangle. Then write one multiplication sentence for the whole rectangle.



A rectangle with 3 rows and 8 columns, split in the middle.

Problem 18: Which split is correct?

Which expression equals 6×8 ?

- a. $6 \times 5 + 6 \times 3$
- b. $6 \times 5 + 3$
- c. $6 + 5 + 3$

Problem 19: Rows of chairs

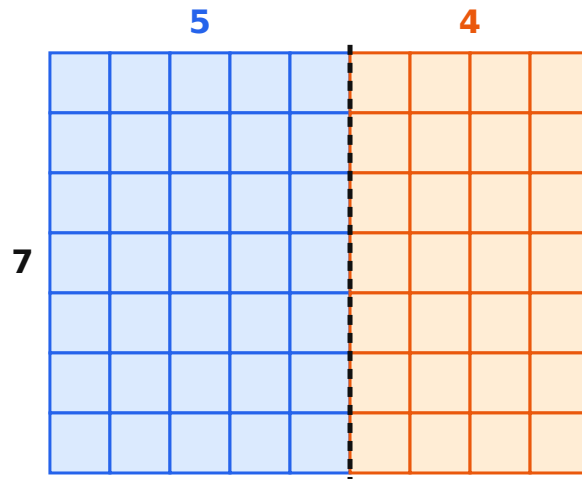
Maya sets up 6 rows of 7 chairs for the school play. Jamal sets up 7 rows of 6 chairs in the gym. Do they set up the same number of chairs? Explain.

Problem 20: Pumpkin stands

At a farmers market, there are 3 stands. Each stand has 2 tables. Each table holds 5 pumpkins. How many pumpkins are there in all? Show two different groupings.

Problem 21: Bake sale trays

Sofia bakes 7 trays for the bake sale. Each tray holds 9 cookies. Split 9 into 5 and 4 to find how many cookies she bakes in all.



One tray: 7 rows of 9 cookies, split into 5 columns and 4 columns.

Problem 22: Erasers in boxes

Ethan has 4 boxes. Each box holds 3 packs. Each pack has 2 erasers. How many erasers does Ethan have?

Problem 23: School store pencils

The school store sells 8 boxes of pencils. Each box has 7 pencils. Use the distributive property to find the number of pencils.

Problem 24: Garden plants

Priya plants 9 rows of 6 bean plants. She splits 6 into 5 and 1 to count them. Her brother Diego says 6 rows of 9 would give the same total. How many plants are there? Is Diego right?