LESSON MAKER PRO

Same Total, New Way

Change the order or groups, keep the total.

GRADE 3 · 3.A.2.2

3.A.2.2 "Identify, represent, and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems."

NAME _____ DATE _____

THE BIG IDEA

You can change the order or grouping of numbers you add or multiply without changing the answer. Adding 0 or multiplying by 1 also keeps a number the same. Choose an order that makes the math easier.

WORKED EXAMPLE

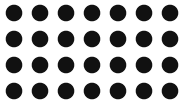
Find 2 x (3 x 5) by changing the order and grouping.

1. Change the order: 2 x (5 x 3).
2. Change the grouping: (2 x 5) x 3.
3. Multiply: 10 x 3 = 30.

Answer: 30

PRACTICE 6 problems

1 Use the array to fill in both blanks: 4 x 7 = ___ x 4 = ___.



ANSWER _____

2 Fill in the missing factor: 8 x 6 = 6 x ___.

ANSWER _____

3 Find the product: (7 x 4) x 1 = ___.

ANSWER _____

4 Fill in both blanks: 9 x (1 x 6) = (9 x 6) x ___ = ___.

ANSWER _____

5 Fill in both blanks: 9 + (7 + 0) = (9 + 7) + ___ = ___.

ANSWER _____

6 Fill in both blanks: 8 + (9 + 1) = (8 + ___) + 9 = ___.

ANSWER _____

APPLY IT Show your work

1 At a school fair, 4 teams each make 6 prize bags. Each bag holds 4 small toys. How many toys do the teams pack in all? Show how you group the factors.

WORK SPACE

ANSWER _____

2 Look at the sticker array on a poster. A student turns the poster sideways. Write a multiplication equation for each way the poster can face. How many stickers are there?



ANSWER _____

CHALLENGE One step up

Maya says 7 x (8 x 1) equals 7 because multiplying by 1 keeps a number the same. Explain her mistake and find the correct product in two sentences.

WORK SPACE AND ANSWER

ANSWER KEY

Same Total, New Way

GRADE 3 · 3.A.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the array to fill in both blanks: 4 x 7 = ___ x 4 = ___.	**7; 28**
2	Fill in the missing factor: 8 x 6 = 6 x ___.	**8**
3	Find the product: (7 x 4) x 1 = ___.	**28**
4	Fill in both blanks: 9 x (1 x 6) = (9 x 6) x ___ = ___.	**1; 54**
5	Fill in both blanks: 9 + (7 + 0) = (9 + 7) + ___ = ___.	**0; 16**
6	Fill in both blanks: 8 + (9 + 1) = (8 + ___) + 9 = ___.	**1; 18**

PART 2 · APPLY IT

1. **96 toys; (4 x 4) x 6 = 96** Group the teams and toys per bag: 4 x 4 = 16. Then multiply 16 x 6 = 96.
2. **8 x 6 = 48; 6 x 8 = 48; 48 stickers** The array has 8 rows of 6 stickers. Turning it sideways gives 6 rows of 8, so both equations have a product of 48.

CHALLENGE

Multiplying by 1 keeps a number the same, so 8 x 1 = 8. Then 7 x 8 = 56, not 7.

Accept equivalent groupings that give the correct totals. For the challenge, the response must explain that multiplying by 1 does not remove the other factor.