

# Multiply Smart

Use operation properties to make facts easier.

GRADE 3 • NY-3.OA.5

**NY-3.OA.5** "Apply properties of operations as strategies to multiply and divide."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## CHOOSE A HELPFUL MOVE

You can switch factors without changing the product. You can regroup factors, or break one factor into parts to make multiplying easier. You can check a division fact by multiplying.

## WORKED EXAMPLE

Find  $13 \times 7$  by breaking apart 13.

1.  $13 = 10 + 3$ .

2.  $13 \times 7 = (10 + 3) \times 7$ .

3.  $(10 \times 7) + (3 \times 7) = 70 + 21 = 91$ .

**Answer: 91**

## PRACTICE 6 problems

- 1** Complete the equation:  $5 \times 8 = 8 \times \underline{\quad} = 40$

**ANSWER** \_\_\_\_\_

- 2** Regroup and find:  $6 \times (9 \times 4)$

**ANSWER** \_\_\_\_\_

- 3** Use  $8 \times (5 + 9)$  to find  $8 \times 14$ . Write an equation and the product.

**ANSWER** \_\_\_\_\_

- 4** Use multiplication to solve:  $54 \div 6 = \underline{\quad}$

**ANSWER** \_\_\_\_\_

- 5** Break apart 8 as  $4 + 4$  to find  $6 \times 8$ .

**ANSWER** \_\_\_\_\_

- 6** Since  $8 \times 8 = 64$ , find  $64 \div 8$ .

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** A game shop has 8 trays with 6 trading cards in each tray. A sign says that  $6 \times 8 = 48$ . How many trading cards are on the trays? Explain why the sign helps.

WORK SPACE

ANSWER \_\_\_\_\_

- 2** A craft club puts 72 beads equally into 8 bracelet kits. How many beads go in each kit? Use a multiplication fact to check.

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

Use parentheses to regroup  $4 \times 5 \times 8$  so you can multiply easily. Show your steps.

WORK SPACE AND ANSWER

## PART 1 • PRACTICE

| # | PROBLEM                                                                           | ANSWER                                                               |
|---|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 1 | Complete the equation: $5 \times 8 = 8 \times \underline{\quad} = 40$             | <b>5</b>                                                             |
| 2 | Regroup and find: $6 \times (9 \times 4)$                                         | <b>216</b>                                                           |
| 3 | Use $8 \times (5 + 9)$ to find $8 \times 14$ . Write an equation and the product. | <b><math>8 \times (5 + 9) = 8 \times 5 + 8 \times 9 = 112</math></b> |
| 4 | Use multiplication to solve: $54 \div 6 = \underline{\quad}$                      | <b>9</b>                                                             |
| 5 | Break apart 8 as $4 + 4$ to find $6 \times 8$ .                                   | <b>48</b>                                                            |
| 6 | Since $8 \times 8 = 64$ , find $64 \div 8$ .                                      | <b>8</b>                                                             |

## PART 2 • APPLY IT

- 48 trading cards. The sign helps because  $8 \times 6$  and  $6 \times 8$  have the same product.** Use the commutative property:  $8 \times 6 = 6 \times 8$ . The sign gives the product, 48.
- 9 beads in each kit. Check:  $8 \times 9 = 72$ .** Divide 72 by 8 to get 9. Check by multiplying  $8 \times 9$ .

## CHALLENGE

**$(4 \times 5) \times 8 = 20 \times 8 = 160$**

Accept equivalent equations that correctly use switching, regrouping, or breaking apart factors. For written explanations, accept any correct statement that switching factor order does not change the product.