Name ___

Multiplication Properties

You can use multiplication properties to help you multiply more easily.

Associative Property of Multiplication

You can change the grouping of the factors. The product stays the same.

$(3 \times 4) \times 4$	= 48 ↓	$3 \times (4 \times 4) =$	48 ↓
Factors	Product	Factors	Product
$12 \times 4 =$	1 48	\uparrow \uparrow $3 \times 16 =$	1 48
	40	5 × 10 -	40

Commutative Property of Multiplication

You can change the order of the factors. The product stays the same.

7 × 4 =	28	4 × 7 =	28
\downarrow \downarrow	Ļ	$\downarrow \downarrow$	Ļ
Factors	Product	Factors	Product

Zero Property of Multiplication

When one of the factors is 0, the product is always 0.

$3 \times 0 =$	O ↓	$0 \times 3 =$	O↓
Factors	Product	Factors	Product

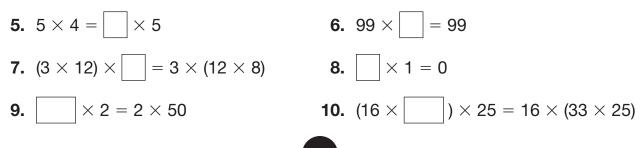
Identity Property of Multiplication

When one of the factors is 1, the product is always the other factor.

Identify the multiplication property or properties used in each equation.

- **1.** $100 \times 0 = 0$ _____ **2.** $7 \times 2 = 2 \times 7$ _____
- **3.** $1 \times 55 = 55$ _____ **4.** $(6 \times 7) \times 9 = 6 \times (7 \times 9)$ _____

Use the multiplication properties to determine what number must be in the box.



Reteaching

3-1

Name _

Multiplication Properties

In **1** through **5**, write the multiplication property used in each equation.

1. $53 \times 6 = 6 \times 53$	
2. 0 × 374,387 = 0	
3. $5 \times (11 \times 4) = (5 \times 11) \times 4$	
4. 42 × 1 = 42	
5. $14 \times 5 = 5 \times 14$	

- **6.** Chan bought 2 large frozen yogurts at \$1.50 each and 1 small bottle of water for \$1.00. How much did she pay in total?
- Dan has 4 shelves. He has exactly 10 books on each shelf. Judy has 10 shelves. She has exactly 4 books on each shelf. Who has more books? Explain.

- **8.** If $3 \times 8 \times 12 = 8 \times 3 \times n$, what is the value of *n*?
 - **A** 3 **B** 8 **C** 12 **D** 18
- **9.** Write a definition for the Associative Property of Multiplication in your own words and explain how you would use it to compute $4 \times 25 \times 27$ mentally.