

**Lesson 2.7** Multiplying and Dividing Using Mathematical Properties

**Commutative Property:** The order in which numbers are multiplied does not change the product.

$$a \times b = b \times a$$

**Associative Property:** The grouping of factors does not change the product.

$$a \times (b \times c) = (a \times b) \times c$$

**Identity Property:** The product of a factor and 1 is the factor.

$$a \times 1 = a$$

**Properties of Zero:** The product of a factor and 0 is 0. The quotient of the dividend 0 and any divisor is 0.

$$a \times 0 = 0 \quad 0 \div a = 0$$

Write the name of the property shown by each equation.

**a**

1.  $3 \times (2 \times r) = (3 \times 2) \times r$

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2.  $12 \times p = p \times 12$

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3.  $0 \div 76 = 0$

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**b**

$15 \times 1 = 15$

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$35 \times 0 = 0$

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$(8 \times 9) \times 12 = 8 \times (9 \times 12)$

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Rewrite each expression using the property indicated.

4. commutative:  $15 \times z$

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5. identity:  $12a \times 1$

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6. zero:  $0 \div 68$

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zero:  $16 \times 0$

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associative:  $14 \times (3 \times p)$

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associative:  $(6 \times 4) \times n$

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