LESSON 7·4

Properties of Operations

OKLAHOMA

Listed in the box below are examples of properties.
Use them to complete the problems on this page.

Commutative Properties	Associative Properties	Distributive Property
$8 + 6 = 6 + 8$	$(3 + 7) + 6 = 3 + (7 + 6)$	$3 \cdot (5 + 6) = (3 \cdot 5) + (3 \cdot 6)$
$5 \cdot 12 = 12 \cdot 5$	$4 \cdot (5 \cdot 8) = (4 \cdot 5) \cdot 8$	

Show that each property above is true for the case given.
The first example is done for you.

1. $8 + 6 = 6 + 8$

$\quad\quad 14 = 14$

2. $5 \cdot 12 = 12 \cdot 5$

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3. $(3 + 7) + 6 = 3 + (7 + 6)$

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4. $4 \cdot (5 \cdot 8) = (4 \cdot 5) \cdot 8$

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5. $3 \cdot (5 + 6) = (3 \cdot 5) + (3 \cdot 6)$

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Find the missing number and name the property shown. Then show that
the property is true for the case given.

6. $(5 + 15) + 8 = 5 + (n + 8)$

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7. $8 \cdot (7 + 4) = (8 \cdot 7) + (8 \cdot n)$

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8. $n + 22 = 22 + 8$

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9. $6 \cdot (n \cdot 8) = (6 \cdot 5) \cdot 8$

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10. $(2 \cdot 5) + (2 \cdot n) = 2 \cdot (5 + 9)$

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11. $25 \cdot n = 2 \cdot 25$

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12. Arsha bought 3 pairs of shoes and 3 pairs of jeans. The shoes cost $18
a pair and the jeans cost $22 a pair. How much did Arsha spend in all?
Try to show two ways of figuring the total cost.

13. A box of pencils contains 10 pencils and a carton contains 50 of these boxes.
If David ordered 4 cartons, how many pencils did he order?
Try to show two ways of figuring the total number of pencils.

Use Multiplication Properties

Solve the equation. Identify the property used.

1. $17 \times a = 23 \times 17$

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2. $(4 \times 2) \times 5 = 4 \times (p \times 5)$

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3. $n \times 1 = 240$

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4. $340 \times b = 0$

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5. $112 \times 13 = n \times 112$

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6. $8 \times (y \times 31) = (8 \times 7) \times 31$

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7. $71 \times k = 71$

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8. $(z \times 14) \times 8 = 9 \times (14 \times 8)$

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9. $65 \times 0 = h$

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10. $28 \times 6 = 6 \times c$

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Identify the property shown.

11. $16 \times p = 16$

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12. $(y \times p) \times t = y \times (p \times t)$

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13. $r \times s = s \times r$

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14. $b \times 0 = 0$

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Mixed Review

15. $\begin{array}{r} 4.482 \\ + 6.157 \\ \hline \end{array}$

16. $\begin{array}{r} 18.2546 \\ - 8.6207 \\ \hline \end{array}$

17. $\begin{array}{r} 159{,}402 \\ - 61{,}089 \\ \hline \end{array}$

18. $\begin{array}{r} 618{,}816 \\ + 372{,}452 \\ \hline \end{array}$

Write *equivalent* or *not equivalent* to describe each pair of decimals.

19. 2.103 and 2.130

20. 6.04 and 6.040

21. 5.015 and 5.150

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