## Multiplication Properties

The table shows properties that can help you multiply.

| Identity Property | 4 × 1 = 4  
<table>
<thead>
<tr>
<th></th>
<th>1 × 4 = 4</th>
</tr>
</thead>
</table>
| Zero Property     | 0 × 2 = 0  
|                  | 2 × 0 = 0 |
| Commutative Property | 3 × 4 = 12  
|                  | 4 × 3 = 12 |
| Associative Property | (3 × 2) × 4 = 3 × (2 × 4)  
|                  | 6 × 4 = 3 × 8  
|                  | 24 = 24 |
| Distributive Property | 4 × 6 = 4 × (1 + 5)  
|                  | = (4 × 1) + (4 × 5)  
|                  | = 4 + 20  
|                  | = 24 |

Find each missing number. Write Identity, Zero, Commutative, Associative, or Distributive to tell what property of multiplication is shown.

1. 2 × 7 = ____  
   7 × 2 = ____  

2. 8 × 0 = ____  

3. 1 × 9 = ____  

4. 3 × 9 = 3 × (4 + ____)
   = (3 × ____ ) + (3 × ____ )  
   = ____ + ____  
   = ____

5. 2 × (2 × 5) = ____  
   (2 × 2) × 5 = ____  
   = ____ + ____  
   = ____
## Multiplication Properties

The table shows properties that can help you multiply.

<table>
<thead>
<tr>
<th>Identity Property</th>
<th>Computation</th>
<th>Identity Property</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product of 1 and any number equals that number.</td>
<td>$4 \times 1 = 4$</td>
<td>The product of 1 and any number equals that number.</td>
<td>$1 \times 4 = 4$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zero Property</th>
<th>Computation</th>
<th>Zero Property</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product of 0 and any number equals 0.</td>
<td>$0 \times 2 = 0$</td>
<td>The product of 0 and any number equals 0.</td>
<td>$2 \times 0 = 0$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commutative Property</th>
<th>Computation</th>
<th>Commutative Property</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can multiply two factors in any order and get the same product.</td>
<td>$3 \times 4 = 12$</td>
<td>You can multiply two factors in any order and get the same product.</td>
<td>$4 \times 3 = 12$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associative Property</th>
<th>Computation</th>
<th>Associative Property</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can group factors in different ways and get the same product.</td>
<td>$(3 \times 2) \times 4 = 3 \times (2 \times 4)$</td>
<td>You can group factors in different ways and get the same product.</td>
<td>$6 \times 4 = 3 \times 8$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distributive Property</th>
<th>Computation</th>
<th>Distributive Property</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can think of one factor as the sum of two addends. Multiply each addend by the other factor and add the products.</td>
<td>$4 \times 6 = 4 \times (1 + 5)$</td>
<td>You can think of one factor as the sum of two addends. Multiply each addend by the other factor and add the products.</td>
<td>$(4 \times 1) + (4 \times 5)$</td>
</tr>
</tbody>
</table>

Find each missing number. Write **Identity**, **Zero**, **Commutative**, **Associative**, or **Distributive** to tell what property of multiplication is shown.

1. $2 \times 7 = \text{14}$
   
   $7 \times 2 = \text{14}$
   
   **Commutative**

2. $8 \times 0 = \text{0}$

3. $1 \times 9 = \text{9}$

4. $3 \times 9 = 3 \times (4 + \text{5})$
   
   $= (3 \times \text{4}) + (3 \times \text{5})$
   
   $= \text{12} + \text{15}$
   
   **Distributive**

5. $2 \times (2 \times 5) = \text{20}$
   
   $= 2 \times \text{10}$
   
   **Associative**


Multiplication Properties

Find the product. Tell which property you used to help you.

1. $8 \times 7 = \underline{56}$
2. $1 \times 6 = \underline{6}$
3. $(2 \times 3) \times 4 = \underline{24}$
4. $7 \times 0 = \underline{0}$
5. $5 \times (2 \times 4) = \underline{40}$
6. $9 \times 1 = \underline{9}$
7. $9 \times 8 = \underline{72}$
8. $(2 \times 6) \times 3 = \underline{36}$
9. $0 \times 4 = \underline{0}$
10. $1 \times 5 = \underline{5}$
11. $8 \times 0 = \underline{0}$
12. $7 \times 6 = \underline{42}$

Write the missing number.

13. $4 \times 3 = \underline{12} \times 4$
14. $5 \times 9 = (5 \times 3) + (5 \times \underline{2})$
15. $3 \times (2 \times 6) = (3 \times \underline{12}) \times 6$
16. $(8 \times 2) \times 4 = \underline{32} \times (2 \times 4)$
17. $\underline{48} \times 9 = 9 \times 6$
18. $4 \times 7 = (\underline{28} \times 5) + (\underline{4} \times 2)$

Mixed Review

Solve.

19. $\frac{4.57}{+ 7.39}$
20. $\frac{9.03}{- 2.54}$
21. $\frac{26.88}{+ 75.42}$
22. $\frac{50.00}{- 24.99}$

Round each number to the nearest thousand.

23. $2,463$ to $\underline{2,500}$
24. $8,711$ to $\underline{9,000}$
25. $932$ to $\underline{900}$
26. $4,300$ to $\underline{4,000}$
27. $6,514$ to $\underline{7,000}$
28. $7,820$ to $\underline{8,000}$
Multiplication Properties

Find the product. Tell which property you used to help you.

1. \(8 \times 7 = \boxed{56}\)  
2. \(1 \times 6 = \boxed{6}\)  
3. \((2 \times 3) \times 4 = \boxed{24}\)
   - Commutative Property  
   - Identity Property  
   - Associative Property
4. \(7 \times 0 = \boxed{0}\)  
5. \(5 \times (2 \times 4) = \boxed{40}\)  
6. \(9 \times 1 = \boxed{9}\)
   - Zero Property  
   - Associative Property  
   - Identity Property
7. \(9 \times 8 = \boxed{72}\)  
8. \((2 \times 6) \times 3 = \boxed{36}\)  
9. \(0 \times 4 = \boxed{0}\)
   - Commutative Property  
   - Associative Property  
   - Zero Property
10. \(1 \times 5 = \boxed{5}\)  
11. \(8 \times 0 = \boxed{0}\)  
12. \(7 \times 6 = \boxed{42}\)
   - Identity Property  
   - Zero Property  
   - Commutative Property

Write the missing number.

13. \(4 \times 3 = \boxed{3} \times 4\)  
14. \(5 \times 9 = (5 \times 3) + (5 \times \boxed{6})\)
15. \(3 \times (2 \times 6) = (3 \times \boxed{2}) \times 6\)  
16. \((8 \times 2) \times 4 = \boxed{8} \times (2 \times 4)\)
17. \(\boxed{6} \times 9 = 9 \times 6\)  
18. \(4 \times 7 = (\boxed{4} \times 5) + (\boxed{4} \times 2)\)

Mixed Review

Solve.

19. \(\$4.57 + \$7.39\)  
20. \(\$9.03 - \$2.54\)  
21. \(\$26.88 + \$75.42\)  
22. \(\$50.00 - \$24.99\)

Round each number to the nearest thousand.

23. \(2,463 \underline{2,000}\)  
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27. \(6,514 \underline{7,000}\)  
28. \(7,820 \underline{8,000}\)
**Property Match Game**

Play with a partner.

**Materials:** Expression cards shown below; scissors

**How to Play:**
- Cut apart the expression cards and place them facedown on a table.
- Players take turns. Turn over two cards. Determine whether the cards are an example of a multiplication property. If so, name the property. If not, place the cards back on the table facedown.
- If the property is named correctly, keep the cards. If not, place the cards back on the table facedown.
- When all the cards have been picked up, the player with more cards wins the game!

<table>
<thead>
<tr>
<th>Expression</th>
<th>Expression</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5 \times 6$</td>
<td>$(2 \times 2) + (2 \times 7)$</td>
<td>7</td>
</tr>
<tr>
<td>$2 \times 9$</td>
<td>$0 \times 7$</td>
<td>$8 \times (4 \times 2)$</td>
</tr>
<tr>
<td>$9 \times 1$</td>
<td>$(7 \times 2) \times 5$</td>
<td>$(3 \times 2) \times 4$</td>
</tr>
<tr>
<td>$0$</td>
<td>$(4 \times 5) + (4 \times 3)$</td>
<td>$6 \times 5$</td>
</tr>
<tr>
<td>$(8 \times 4) \times 2$</td>
<td>$7 \times (2 \times 5)$</td>
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Make up your own set of cards. Trade with another pair of classmates, and play again.
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