Multiplication Practice Sheets: Grade 4

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Multiplication Practice Sheets – Grade 4
Week after week…month after month. Multiplication just never seems to end for fourth graders! Looking for a way out? Don’t bother – you’re trapped. The only thing you can do is keep plowing ahead. If you keep practicing and building a strong foundation now, you’ll be ready to tackle division and more complicated concepts later on.

Use these multiplication worksheets to reinforce what you’re learning in class, to prep for standardized tests, or to keep your math mind in gear during the summer. But before you jump in, take a look at the “Math Hints and Reminders” sheets. You may want to refer to these pages and their tips as you go through the worksheets.

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Math Hints and Reminders: Multiplication Concepts and Facts

**Reviewing the Meaning of Multiplication**
When you’re putting together equal numbers, you can use addition or multiplication: Adding four 6s (6 + 6 + 6 + 6 = 24) is the same as multiplying 4 x 6 = 24, except multiplication is quicker! Here’s a little multiplication vocab to get you started:

<table>
<thead>
<tr>
<th>Factors</th>
<th>Numbers that are multiplied together to get a product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>The number you get after multiplying factors – in other words, the answer!</td>
</tr>
<tr>
<td>Place value</td>
<td>The value given to a digit’s place in a number: 423 = 4 hundreds, 2 tens, 3 ones</td>
</tr>
<tr>
<td>Multiple</td>
<td>The product of a given number and any other number:</td>
</tr>
<tr>
<td></td>
<td>6 x 2 = 12</td>
</tr>
<tr>
<td></td>
<td>6 x 3 = 18 → multiples of 6</td>
</tr>
</tbody>
</table>

There’s no trick to memorizing your multiplication facts. You just have to do it. Flash cards can help. Once you have the facts down, multiplying 2-digit and 3-digit numbers is just a matter of adding a few steps onto what you already know.

**Exploring Patterns in Multiplying by 0, 1, 2, 5, and 9**
Identifying patterns can help you learn your multiplication facts, and it will help you with division later on. Here are a few patterns and properties that you should memorize, if you haven’t already:

<table>
<thead>
<tr>
<th>Property</th>
<th>Two numbers can be multiplied in any order: 3 x 4 = 4 x 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Property</td>
<td>The product of 0 and any number is 0: 0 x 3 = 0</td>
</tr>
<tr>
<td>One Property</td>
<td>The product of 1 and any number (except 0) is that number: 1 x 3 = 3</td>
</tr>
<tr>
<td>Multiples of 2</td>
<td>End in 0, 2, 4, 6, or 8</td>
</tr>
<tr>
<td>Multiples of 5</td>
<td>End in 0 or 5</td>
</tr>
<tr>
<td>Multiples of 9</td>
<td>The sum of the digits is nine. And the digit in the tens place of the product is one less than the other factor.</td>
</tr>
</tbody>
</table>

**Multiplying with 3 and 4 as Factors**
You can use what you know about multiplying by 0, 1, and 2 — and a little bit of addition — to help you multiply by 3 or 4.

<table>
<thead>
<tr>
<th>You can use a 2s fact plus a 1s fact to find any multiple of 3. To find 3 x 7, multiply:</th>
<th>You can double a 2s fact to find any multiple of 4. To find 4 x 6, multiply:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 7 = 14</td>
<td>2 x 6 = 12</td>
</tr>
<tr>
<td>1 x 7 = 7</td>
<td>2 x 6 = 12</td>
</tr>
<tr>
<td>Then add: 14 + 7 = 21</td>
<td>Then add: 12 + 12 = 24.</td>
</tr>
</tbody>
</table>
**Multiplying with 6, 7, and 8 as Factors**

You can use what you know about multiplying 2, 3, 4, and 5 — and a little bit of addition — to help you multiply by 6, 7, and 8.

<table>
<thead>
<tr>
<th>You can double a 3s fact to find any multiple of 6. To find 6 x 9, multiply:</th>
<th>You can use a 5s fact plus a 2s fact to find any multiple of 7. To find 7 x 4, multiply:</th>
<th>You can double a 4s fact to find any multiple of 8. To find 8 x 8, multiply:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 x 9 = 27</td>
<td>5 x 4 = 20</td>
<td>4 x 8 = 32</td>
</tr>
<tr>
<td>3 x 9 = 27</td>
<td>2 x 4 = 8</td>
<td>4 x 8 = 32</td>
</tr>
<tr>
<td>Then add: 27 + 27 = 54</td>
<td>Then add: 20 + 8 = 28</td>
<td>Then add: 32 + 32 = 64</td>
</tr>
</tbody>
</table>

**Exploring Patterns in Multiples of 10, 11, and 12**

Here’s how to find the multiples of 10, 11, and 12:

<table>
<thead>
<tr>
<th>Multiples of 10</th>
<th>Multiples of 11</th>
<th>Multiples of 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>To multiply a number by 10, add a 0 to the end of the number being multiplied by 10.</td>
<td>To multiply a number less than 10 by 11, write the number being multiplied by 11 in the tens place and the ones place.</td>
<td>To multiply a number by 12, find the multiple of 10, and then add twice the number. To find 12 x 4, multiply:</td>
</tr>
<tr>
<td>10 x 4 = 40</td>
<td>11 x 3 = 33</td>
<td>10 x 4 = 40</td>
</tr>
<tr>
<td>10 x 5 = 50</td>
<td>11 x 4 = 44</td>
<td>2 x 4 = 8</td>
</tr>
<tr>
<td>10 x 6 = 60</td>
<td>11 x 5 = 55</td>
<td>40 + 8 = 48</td>
</tr>
</tbody>
</table>

**Exploring Factors**

Factors are numbers that go into other numbers evenly, without a remainder. A “prime number” is a whole number that is greater than 1 and has only two factors, 1 and itself: 2, 3, 5, 7, etc. A “composite number” is a whole number that’s greater than 1 and has at least three factors: 4, 6, 8, 9, etc. To figure out whether a number is prime or composite, systematically check it. Ask yourself: Is there a 2s fact that has this number as a product? A 3s fact? A 4s fact?...
Reviewing the Meaning of Multiplication
Complete each number sentence.

1. \[ \begin{array}{cc}
\text{a.} & \text{______} + \text{______} = \text{______} \\
\text{b.} & \text{______} \times \text{______} = \text{______}
\end{array} \]

2. \[ \begin{array}{cc}
\text{a.} & \text{______} + \text{______} + \text{______} + \text{______} = \text{______} \\
\text{b.} & \text{______} \times \text{______} = \text{______}
\end{array} \]

3. \[ \begin{array}{cc}
\text{a.} & \text{______} + \text{______} + \text{______} = \text{______} \\
\text{b.} & \text{______} \times \text{______} = \text{______}
\end{array} \]

4. \[ \begin{array}{cc}
\text{a.} & \text{______} + \text{______} + \text{______} + \text{______} = \text{______} \\
\text{b.} & \text{______} \times \text{______} = \text{______}
\end{array} \]

5. Draw two different pictures to show \(2 \times 5\).

6. Can you use multiplication to find \(7 + 7 + 7\)? Explain.
Reviewing the Meaning of Multiplication

Complete each number sentence.

1. 
   a. \( \_\_ + \_\_ = \_\_\_\)
   b. \( \_\\_ \times \_\_ = \_\_\_\)

2. 
   a. \( \_\_ + \_\_ + \_\_ + \_\_ = \_\_\_\)
   b. \( \_\_ \times \_\_ = \_\_\_\)

3. 
   a. \( \_\_ + \_\_ + \_\_ + \_\_ = \_\_\_\)
   b. \( \_\_ \times \_\_ = \_\_\_\)

4. 
   a. \( \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ = \_\_\_\)
   b. \( \_\_ \times \_\_ = \_\_\_\)

5. Draw two different pictures to show \(2 \times 5\).

6. Can you use multiplication to find \(7 + 7 + 7\)? Explain.

   Yes. 3 equal groups of 7 are \(3 \times 7 = 21\).
Exploring Patterns in Multiplying by 0, 1, 2, 5, and 9

Complete.

1. Multiples of 2 end in _____, _____, _____, _____, or _____.
2. Multiples of 5 end in _____ or _____.
3. Describe the pattern that multiples of 9 follow.

4. Does $4 \times 5 = 5 \times 4$? Explain.

Find each product.

5. $2 \times 4 = _____$
6. $5 \times 3 = _____$
7. $5 \times 9 = _____$
8. $9 \times 3 = _____$
9. $4 \times 5 = _____$
10. $5 \times 6 = _____$
11. $9 \times 6 = _____$
12. $2 \times 6 = _____$
13. $0 \times 1 = _____$
14. $4 \times 1 = _____$
15. $9 \times 9 = _____$
16. $7 \times 5 = _____$
17. $2 \times 8 = _____$
18. $1 \times 5 = _____$
19. $4 \times 9 = _____$
20. $5 \times 5 = _____$
21. $8 \times 0 = _____$
22. $7 \times 2 = _____$
23. $2 \times 0 = _____$
24. $9 \times 2 = _____$
25. $3 \times 2 = _____$
26. $9 \times 1 = _____$
27. $2 \times 5 = _____$
28. $9 \times 8 = _____$

29. Find the product of 5 and 5. _____
30. Find the product of 7 and 9. _____
31. Which is greater, $3 \times 5$ or $2 \times 6$? Explain.

32. Which is less, $5 \times 8$ or $4 \times 9$? Explain.
Exploring Patterns in Multiplying by 0, 1, 2, 5, and 9

Complete.

1. Multiples of 2 end in ____, ____, ____, ____ , or ____.
2. Multiples of 5 end in ____ or ____.
3. Describe the pattern that multiples of 9 follow.
   Possible answers: The sum of the digits is always 9. The tens digit is 1 less than the other factor.
4. Does $4 \times 5 = 5 \times 4$? Explain.
   Yes: The Order Property states that two numbers can be multiplied in any order.

Find each product.

5. $2 \times 4 = 8$
6. $5 \times 3 = 15$
7. $5 \times 9 = 45$
8. $9 \times 3 = 27$
9. $4 \times 5 = 20$
10. $5 \times 6 = 30$
11. $9 \times 6 = 54$
12. $2 \times 6 = 12$
13. $0 \times 1 = 0$
14. $4 \times 1 = 4$
15. $9 \times 9 = 81$
16. $7 \times 5 = 35$
17. $2 \times 8 = 16$
18. $1 \times 5 = 5$
19. $4 \times 9 = 36$
20. $5 \times 5 = 25$
21. $8 \times 0 = 0$
22. $7 \times 2 = 14$
23. $2 \times 0 = 0$
24. $9 \times 2 = 18$
25. $3 \times 2 = 6$
26. $9 \times 1 = 9$
27. $2 \times 5 = 10$
28. $9 \times 8 = 72$
29. Find the product of 5 and 5. ____ 25
30. Find the product of 7 and 9. ____ 63
31. Which is greater, $3 \times 5$ or $2 \times 6$? Explain.
   $3 \times 5; 3 \times 5 = 15$ and $2 \times 6 = 12$
32. Which is less, $5 \times 8$ or $4 \times 9$? Explain.
   $4 \times 9; 4 \times 9 = 36$ and $5 \times 8 = 40$
Multiplying with 3 and 4 as Factors

Find each product.

1. \[ 3 \times 1 = \] 2. \[ 4 \times 2 = \] 3. \[ 3 \times 3 = \] 4. \[ 3 \times 6 = \]

5. \[ 5 \times 3 = \] 6. \[ 6 \times 4 = \] 7. \[ 4 \times 7 = \] 8. \[ 5 \times 4 = \]

9. \[ 7 \times 3 = \] 10. \[ 8 \times 4 = \] 11. \[ 3 \times 2 = \] 12. \[ 3 \times 4 = \]

13. \[ 4 \times 9 = \] 14. \[ 3 \times 8 = \] 15. \[ 4 \times 4 = \] 16. \[ 9 \times 3 = \]

17. \[ 3 \times 1 = \] 18. \[ 4 \times 1 = \] 19. \[ 4 \times 8 = \] 20. \[ 3 \times 5 = \]

21. \[ 6 \times 4 = \] 22. \[ 4 \times 3 = \] 23. \[ 5 \times 7 = \]
24. \[ 7 \times 3 = \] 25. \[ 0 \times 3 = \] 26. \[ 1 \times 4 = \]

27. Find the product of 4 and 7. __________

28. Find the product of 9 and 3. __________

29. Find the product of 8 and 3. __________

30. Find the product of 4 and 6. __________

31. To multiply 8 by 3, you can find the product of 2 and 8 and the product of 1 and 8 and __________ them.

32. To multiply 4 by 7, you can find the product of 5 and 7 and __________ the product of 1 and 7.
Multiplying with 3 and 4 as Factors
Find each product.

1. \(3 \times 1 = \boxed{3}\)
2. \(4 \times 2 = \boxed{8}\)
3. \(3 \times 3 = \boxed{9}\)
4. \(3 \times 6 = \boxed{18}\)
5. \(5 \times 3 = \boxed{15}\)
6. \(6 \times 4 = \boxed{24}\)
7. \(4 \times 7 = \boxed{28}\)
8. \(5 \times 4 = \boxed{20}\)
9. \(7 \times 3 = \boxed{21}\)
10. \(8 \times 4 = \boxed{32}\)
11. \(3 \times 2 = \boxed{6}\)
12. \(3 \times 4 = \boxed{12}\)
13. \(4 \times 9 = \boxed{36}\)
14. \(3 \times 8 = \boxed{24}\)
15. \(4 \times 4 = \boxed{16}\)
16. \(9 \times 3 = \boxed{27}\)
17. \(3 \times 1 = \boxed{3}\)
18. \(4 \times 4 = \boxed{16}\)
19. \(4 \times 8 = \boxed{32}\)
20. \(3 \times 5 = \boxed{15}\)
21. \(6 \times 4 = \boxed{24}\)
22. \(4 \times 3 = \boxed{12}\)
23. \(5 \times 7 = \boxed{35}\)
24. \(7 \times 3 = \boxed{21}\)
25. \(0 \times 3 = \boxed{0}\)
26. \(1 \times 4 = \boxed{4}\)

27. Find the product of 4 and 7. \(\boxed{28}\)
28. Find the product of 9 and 3. \(\boxed{27}\)
29. Find the product of 8 and 3. \(\boxed{24}\)
30. Find the product of 4 and 6. \(\boxed{24}\)
31. To multiply 8 by 3, you can find the product of 2 and 8 and the product of 1 and 8 and add them.
32. To multiply 4 by 7, you can find the product of 5 and 7 and subtract the product of 1 and 7.
### Multiplying with 6, 7, and 8 as Factors

Find each product.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$7 \times 3$</td>
<td>2.</td>
<td>$6 \times 4$</td>
</tr>
<tr>
<td>3.</td>
<td>$8 \times 6$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>$4 \times 2$</td>
<td>5.</td>
<td>$8 \times 7$</td>
</tr>
<tr>
<td>6.</td>
<td>$6 \times 8$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>$8 \times 3$</td>
<td>8.</td>
<td>$7 \times 2$</td>
</tr>
<tr>
<td>9.</td>
<td>$4 \times 1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>$6 \times 7$</td>
<td>11.</td>
<td>$8 \times 9$</td>
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<tr>
<td>12.</td>
<td>$9 \times 7$</td>
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</tr>
<tr>
<td>13.</td>
<td>$7 \times 7$</td>
<td>14.</td>
<td>$6 \times 3$</td>
</tr>
<tr>
<td>15.</td>
<td>$6 \times 6$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>$8 \times 8$</td>
<td>17.</td>
<td>$5 \times 6$</td>
</tr>
<tr>
<td>18.</td>
<td>$6 \times 9$</td>
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<tbody>
<tr>
<td>19.</td>
<td>6</td>
<td>20.</td>
<td>3</td>
</tr>
<tr>
<td>21.</td>
<td>8</td>
<td>22.</td>
<td>4</td>
</tr>
<tr>
<td>$\times 3$</td>
<td>$\times 8$</td>
<td>$\times 5$</td>
<td>$\times 6$</td>
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<tbody>
<tr>
<td>23.</td>
<td>8</td>
<td>24.</td>
<td>7</td>
</tr>
<tr>
<td>25.</td>
<td>3</td>
<td>26.</td>
<td>2</td>
</tr>
<tr>
<td>$\times 3$</td>
<td>$\times 4$</td>
<td>$\times 6$</td>
<td>$\times 7$</td>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>27.</td>
<td>4</td>
<td>28.</td>
<td>2</td>
</tr>
<tr>
<td>29.</td>
<td>4</td>
<td>30.</td>
<td>8</td>
</tr>
<tr>
<td>$\times 7$</td>
<td>$\times 6$</td>
<td>$\times 8$</td>
<td>$\times 4$</td>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>31.</td>
<td>8</td>
<td>32.</td>
<td>5</td>
</tr>
<tr>
<td>33.</td>
<td>7</td>
<td>34.</td>
<td>6</td>
</tr>
<tr>
<td>$\times 6$</td>
<td>$\times 7$</td>
<td>$\times 8$</td>
<td>$\times 7$</td>
</tr>
</tbody>
</table>

35. Draw an array for $8 \times 8 = 64$. Explain why it makes sense to call 64 a square number.
Multiplying with 6, 7, and 8 as Factors

Find each product.

1. \(7 \times 3 = \underline{21}\)  
2. \(6 \times 4 = \underline{24}\)  
3. \(8 \times 6 = \underline{48}\)  
4. \(4 \times 2 = \underline{8}\)  
5. \(8 \times 7 = \underline{56}\)  
6. \(6 \times 8 = \underline{48}\)  
7. \(8 \times 3 = \underline{24}\)  
8. \(7 \times 2 = \underline{14}\)  
9. \(4 \times 1 = \underline{4}\)  
10. \(6 \times 7 = \underline{42}\)  
11. \(8 \times 9 = \underline{72}\)  
12. \(9 \times 7 = \underline{63}\)  
13. \(7 \times 7 = \underline{49}\)  
14. \(6 \times 3 = \underline{18}\)  
15. \(6 \times 6 = \underline{36}\)  
16. \(8 \times 8 = \underline{64}\)  
17. \(5 \times 6 = \underline{30}\)  
18. \(6 \times 9 = \underline{54}\)  

19. \(6 \times 3 = \underline{18}\)  
20. \(3 \times 8 = \underline{24}\)  
21. \(8 \times 5 = \underline{40}\)  
22. \(4 \times 6 = \underline{24}\)  
23. \(8 \times 3 = \underline{24}\)  
24. \(7 \times 4 = \underline{28}\)  
25. \(3 \times 6 = \underline{18}\)  
26. \(2 \times 7 = \underline{14}\)  
27. \(4 \times 7 = \underline{28}\)  
28. \(2 \times 6 = \underline{12}\)  
29. \(4 \times 8 = \underline{32}\)  
30. \(3 \times 4 = \underline{32}\)  
31. \(8 \times 6 = \underline{48}\)  
32. \(5 \times 7 = \underline{35}\)  
33. \(7 \times 8 = \underline{56}\)  
34. \(6 \times 7 = \underline{42}\)  
35. Draw an array for \(8 \times 8 = 64\). Explain why it makes sense to call 64 a square number. Check students’ drawings.

The array is a square; \(8 \times 8\)
Exploring Patterns in Multiples of 10, 11, and 12

Complete.

1. Multiples of 10 end in ______.
2. Describe the pattern that multiples of 11 follow.
   
   ________________________________

3. Multiples of 12 end in ____ , ____ , ____ , ____ or ____.

Find each product.
4. $10 \times 2 = _____$  
5. $11 \times 7 = _____$  
6. $10 \times 6 = _____$
7. $5 \times 10 = _____$  
8. $4 \times 11 = _____$  
9. $12 \times 7 = _____$
10. $10 \times 3 = _____$  
11. $12 \times 6 = _____$  
12. $10 \times 7 = _____$
13. $11 \times 3 = _____$  
14. $3 \times 12 = _____$  
15. $2 \times 11 = _____$
16. $10 \times 11 = _____$  
17. $4 \times 12 = _____$  
18. $9 \times 11 = _____$
19. $12 \times 5 = _____$  
20. $11 \times 11 = _____$  
21. $11 \times 8 = _____$
22. $12 \times 12 = _____$  
23. $2 \times 12 = _____$  
24. $10 \times 5 = _____$

25. How can you use the fact $11 \times 6 = 66$ to solve $11 \times 7$?
   
   ________________________________

26. If you have 4 dozen bagels, how many bagels do you have? Explain.

   ________________________________

27. Sophie has 6 jelly beans. Ted has 10 times as many. How many jelly beans does Ted have? Explain.

   ________________________________
Exploring Patterns in Multiples of 10, 11, and 12

Complete.

1. Multiples of 10 end in ________.

2. Describe the pattern that multiples of 11 follow.
   Possible answer: The ones digit increases by 1 each time.

3. Multiples of 12 end in 0, 2, 4, 6 or 8.

Find each product.

4. $10 \times 2 = \underline{20}$
5. $11 \times 7 = \underline{77}$
6. $10 \times 6 = \underline{60}$
7. $5 \times 10 = \underline{50}$
8. $4 \times 11 = \underline{44}$
9. $12 \times 7 = \underline{84}$
10. $10 \times 3 = \underline{30}$
11. $12 \times 6 = \underline{72}$
12. $10 \times 7 = \underline{70}$
13. $11 \times 3 = \underline{33}$
14. $3 \times 12 = \underline{36}$
15. $2 \times 11 = \underline{22}$
16. $10 \times 11 = \underline{110}$
17. $4 \times 12 = \underline{48}$
18. $9 \times 11 = \underline{99}$
19. $12 \times 5 = \underline{60}$
20. $11 \times 11 = \underline{121}$
21. $11 \times 8 = \underline{88}$
22. $12 \times 12 = \underline{144}$
23. $2 \times 12 = \underline{24}$
24. $10 \times 5 = \underline{50}$

25. How can you use the fact $11 \times 6 = 66$ to solve $11 \times 7$?
   Possible answer: Add 11 to 66 to get 77.

26. If you have 4 dozen bagels, how many bagels do you have? Explain.
   48: There are 12 bagels in a dozen. $4 \times 12 = 48$ bagels

27. Sophie has 6 jelly beans. Ted has 10 times as many. How many jelly beans does Ted have? Explain.
   60; $6 \times 10 = 60$
Exploring Factors
Write a definition for each term.

1. factor __________________________

2. prime __________________________

3. composite _______________________

Complete. Then list all the factors for each number.

4. \( \square \times \square = 6 \)  
5. \( \square \times \square = 8 \)  
6. \( \square \times \square = 9 \)

\( \square \times \square = 6 \)  
\( \square \times \square = 8 \)  
\( \square \times \square = 9 \)

List all the factors for each number. You may draw rectangles on grid paper to help you.

7. 14: _____________________________

8. 32: _____________________________

9. 23: _____________________________

10. 18: _____________________________

Write whether each number is prime or composite.

11. 15 ______ 12. 17 ______ 13. 13 ______

14. 66 ______ 15. 63 ______ 16. 16 ______

17. 14 ______ 18. 31 ______ 19. 51 ______

Complete each list of prime numbers.

20. 3, 5, 7, ______ ______ 21. 31, 37, 39, ______ ______

22. 23, 29, 31, ______ ______ 23. 7, 11, 13, ______ ______

Complete each list of composite numbers.

24. 12, 14, 15, ______ ______ 25. 35, 36, 38, ______ ______

26. 2, 4, 6, ______ ______ 27. 20, 21, 22, ______ ______

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Exploring Factors

Write a definition for each term.

1. factor  **A factor is a number that divides another number evenly.**
2. prime  **A prime number has only 2 factors: itself and 1.**
3. composite **A composite number has more than 2 factors.**

Complete. Then list all the factors for each number.

4. \[1 \times 6 = 6\]  \[3 \times 2 = 6\]  \[1, 2, 3, 6\]
5. \[1 \times 8 = 8\]  \[2 \times 4 = 8\]  \[1, 2, 4, 8\]
6. \[1 \times 9 = 9\]  \[3 \times 3 = 9\]  \[1, 3, 9\]

List all the factors for each number. You may draw rectangles on grid paper to help you.

7. \[14: 1, 2, 7, 14\]
8. \[32: 1, 2, 4, 8, 16, 32\]
9. \[23: 1, 23\]
10. \[18: 1, 2, 3, 6, 9\]

Write whether each number is prime or composite.

11. \[15\]  **Composite**
12. \[17\]  **Prime**
13. \[13\]  **Prime**
14. \[66\]  **Composite**
15. \[63\]  **Composite**
16. \[16\]  **Composite**
17. \[14\]  **Composite**
18. \[31\]  **Prime**
19. \[51\]  **Prime**

Complete each list of prime numbers.

20. \[3, 5, 7, 11, 13\]
21. \[31, 37, 39, 41, 43\]
22. \[23, 29, 31, 37, 39\]
23. \[7, 11, 13, 17, 19\]

Complete each list of composite numbers.

24. \[12, 14, 15, 16, 18\]
25. \[35, 36, 38, 39, 40\]
26. \[2, 4, 6, 8, 10\]
27. \[20, 21, 22, 24, 25\]
Math Hints and Reminders: Multiplying by 1-Digit Factors

Multiplying Tens
You probably already know the multiples of 10, right? (10, 20, 30, 40, 50, etc.) Now, to multiply by these numbers, just use the basic multiplication facts that you already know, and tack a zero onto the product: $7 \times 60 = 420$ or $7 \times 6 \text{ tens} = 42 \text{ tens}$.

Exploring Multiplication Patterns
Once you have a basic multiplication fact down, like $6 \times 6 = 36$, multiplying by tens, hundreds, and thousands is just a matter of counting up the number of zeros in the factors and tacking them onto the basic fact. Take a look at the pattern:

$6 \times 6 = 36$
$6 \times 60 = 360$
$6 \times 600 = 3,600$
$6 \times 6,000 = 36,000$
$6 \times 60,000 = 360,000$

Estimating Products
Some questions don’t require an exact answer. Sometimes an estimate will do! To estimate answers for multiplication problems, first you need to “round” one of the factors to a number that’s easy to work with – such as a number that ends in zero. Then use your basic multiplication facts.

Here’s a tip to help you with rounding: Circle the leading digit in the number and then underline the digit to its right. If the underlined digit is less than 5, round down to the nearest ten or hundred. If the underlined digit is greater than or equal to 5, round up to the nearest ten or hundred: $65 \rightarrow 70$, $626 \rightarrow 600$.

Multiplying 2-Digit Numbers
There are a couple of ways you can multiply by a 2-digit number. You can “regroup,” or name a number in a different way: $13 \text{ ones} = 1 \text{ ten and 3 ones}$. You can also use “partial products”: Multiply the ones and record the product, multiply the tens and record the product and add to reach an answer. Here’s how both methods work:

<table>
<thead>
<tr>
<th>To find $6 \times 27$ using regrouping...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply the ones. Regroup.</td>
</tr>
<tr>
<td>$4$</td>
</tr>
<tr>
<td>$27$</td>
</tr>
<tr>
<td>$\times 6$</td>
</tr>
<tr>
<td>$2$</td>
</tr>
<tr>
<td>$6 \times 7 = 42 \text{ ones}$</td>
</tr>
<tr>
<td>Regroup 42 ones as 4 tens and 2 ones.</td>
</tr>
<tr>
<td>So... $6 \times 27 = 162$</td>
</tr>
</tbody>
</table>

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To find 2 x 26 using partial products...

<table>
<thead>
<tr>
<th>Multiply the ones.</th>
<th>Multiply the tens.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 x 2</td>
<td>6 = 12 ones</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>52</td>
<td>Add the products. So... 26 x 2 = 52</td>
</tr>
</tbody>
</table>

**Multiplying 3-Digit Numbers**

Seeing 3-digit numbers in a multiplication problem can be intimidating, but it’s really not much harder than what you’ve already been doing. Whether you’re multiplying with 2 digits or 3 digits, the rules are the same. You just have to follow them one extra time!

**Multiplying Money**

Multiplying money is just like multiplying other numbers, but with an added twist! When you’re done multiplying, you add a dollar sign to the left of the answer, and a decimal point to the left of the tens place. Just how important is that little decimal point? Well, what’s the difference between $5,070 and $50.70? About $5,000... big difference!

**Mental Math: Special Products**

Mental math may sound like some strange telekinetic number game, but it’s really just about multiplying numbers quickly, in your head. The key to multiplying in your head is to break a problem down into numbers that are easy to work with, such as numbers that end in zero.

<table>
<thead>
<tr>
<th>Find 44 x 2</th>
<th>Find 98 x 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think of 44 as 40 + 4</td>
<td>Think of 98 as almost 100</td>
</tr>
<tr>
<td>40 x 2 = 80 and 4 x 2 = 8</td>
<td>100 x 3 = 300</td>
</tr>
<tr>
<td>80 + 8 = 88</td>
<td>Subtract 2 groups of 3 → 300 - 6 = 294</td>
</tr>
<tr>
<td>So... 44 x 2 = 88</td>
<td>So... 98 x 3 = 294</td>
</tr>
</tbody>
</table>

When you round up to reach a workable number, subtract in the next step. When you round down, add in the next step.

**Multiplying 3 Factors**

When you’re multiplying 3 factors, the parentheses tell you which numbers to multiply first. Keep in mind that changing the grouping of the numbers will not change the product. When choosing which numbers to multiply first, your best
bet (in most cases!) is to start off with the two least factors. This usually makes multiplying the third factor a little simpler.
### Multiplying Tens

Use a multiplication fact table to help you find each product.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 4 × 2 tens = _______ tens</td>
<td>2. 6 × 3 tens = _______ tens</td>
<td>3. 3 × 7 tens = _______ tens</td>
</tr>
<tr>
<td>4. 20 = _______</td>
<td>5. 30 = _______</td>
<td>6. 70 = _______</td>
</tr>
<tr>
<td>4. 70 = _______</td>
<td>5. 80 = _______</td>
<td>6. 90 = _______</td>
</tr>
<tr>
<td>7. 4 × 4 tens = _______ tens</td>
<td>8. 8 × 7 tens = _______ tens</td>
<td>9. 9 × 80 = _______</td>
</tr>
<tr>
<td>8. 40 = _______</td>
<td>10. 70 = _______</td>
<td>11. 3 × 80 = _______</td>
</tr>
<tr>
<td>12. 4 × 60 = _______</td>
<td>13. 6 × 50 = _______</td>
<td>14. 4 × 40 = _______</td>
</tr>
<tr>
<td>15. 8 × 10 = _______</td>
<td>16. 6 × 60 = _______</td>
<td>17. 9 × 20 = _______</td>
</tr>
<tr>
<td>18. 7 × 20 = _______</td>
<td>19. 7 × 50 = _______</td>
<td>20. 6 × 80 = _______</td>
</tr>
<tr>
<td>21. 9 × 10 = _______</td>
<td>22. 5 × 10 = _______</td>
<td>23. 3 × 70 = _______</td>
</tr>
<tr>
<td>24. 9 × 40 = _______</td>
<td>25. 3 × 60 = _______</td>
<td>26. 8 × 50 = _______</td>
</tr>
<tr>
<td>27. 8 × 70 = _______</td>
<td>28. 9 × 30 = _______</td>
<td>29. 9 × 60 = _______</td>
</tr>
<tr>
<td>30. 7 × 30 = _______</td>
<td>31. 3 × 90 = _______</td>
<td>32. 8 × 20 = _______</td>
</tr>
<tr>
<td>33. Can you use the same multiplication fact to find 3 × 60 and 2 × 90? Explain.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Can you use the same multiplication fact to find 4 × 60 and 6 × 40? Explain.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiplying Tens

Use a multiplication fact table to help you find each product.

1. \(4 \times 2\) tens = \(8\) tens
   \(4 \times 20 = \underline{80}\)
2. \(6 \times 3\) tens = \(18\) tens
   \(6 \times 30 = \underline{180}\)
3. \(3 \times 7\) tens = \(21\) tens
   \(3 \times 70 = \underline{210}\)
4. \(5 \times 8\) tens = \(40\) tens
   \(5 \times 80 = \underline{400}\)
5. \(7 \times 9\) tens = \(63\) tens
   \(7 \times 90 = \underline{630}\)
6. \(2 \times 8\) tens = \(16\) tens
   \(2 \times 80 = \underline{160}\)
7. \(4 \times 4\) tens = \(16\) tens
   \(4 \times 40 = \underline{160}\)
8. \(8 \times 7\) tens = \(56\) tens
   \(8 \times 70 = \underline{560}\)
9. \(9 \times 8\) tens = \(72\) tens
   \(9 \times 80 = \underline{720}\)
10. \(6 \times 7\) tens = \(42\) tens
    \(6 \times 70 = \underline{420}\)
11. \(3 \times 8\) tens = \(24\) tens
    \(3 \times 80 = \underline{240}\)
12. \(4 \times 6\) tens = \(24\) tens
    \(4 \times 60 = \underline{240}\)
13. \(6 \times 5\) tens = \(30\) tens
    \(6 \times 50 = \underline{300}\)
14. \(4 \times 4\) tens = \(16\) tens
    \(4 \times 40 = \underline{160}\)
15. \(8 \times 1\) tens = \(80\) tens
    \(8 \times 10 = \underline{80}\)
16. \(6 \times 6\) tens = \(36\) tens
    \(6 \times 60 = \underline{360}\)
17. \(9 \times 2\) tens = \(18\) tens
    \(9 \times 20 = \underline{180}\)
18. \(7 \times 2\) tens = \(14\) tens
    \(7 \times 20 = \underline{140}\)
19. \(7 \times 5\) tens = \(35\) tens
    \(7 \times 50 = \underline{350}\)
20. \(6 \times 8\) tens = \(48\) tens
    \(6 \times 80 = \underline{480}\)
21. \(9 \times 1\) tens = \(9\) tens
    \(9 \times 10 = \underline{90}\)
22. \(5 \times 1\) tens = \(5\) tens
    \(5 \times 10 = \underline{50}\)
23. \(3 \times 7\) tens = \(21\) tens
    \(3 \times 70 = \underline{210}\)
24. \(9 \times 4\) tens = \(36\) tens
    \(9 \times 40 = \underline{360}\)
25. \(3 \times 6\) tens = \(18\) tens
    \(3 \times 60 = \underline{180}\)
26. \(8 \times 5\) tens = \(40\) tens
    \(8 \times 50 = \underline{400}\)
27. \(8 \times 7\) tens = \(56\) tens
    \(8 \times 70 = \underline{560}\)
28. \(9 \times 3\) tens = \(27\) tens
    \(9 \times 30 = \underline{270}\)
29. \(9 \times 6\) tens = \(54\) tens
    \(9 \times 60 = \underline{540}\)
30. \(7 \times 3\) tens = \(21\) tens
    \(7 \times 30 = \underline{210}\)
31. \(3 \times 9\) tens = \(27\) tens
    \(3 \times 90 = \underline{270}\)
32. \(8 \times 2\) tens = \(16\) tens
    \(8 \times 20 = \underline{160}\)

33. Can you use the same multiplication fact to find \(3 \times 60\) and \(2 \times 90\)? Explain.

**No. The multiplication facts are different, even though the products are the same.**

34. Can you use the same multiplication fact to find \(4 \times 60\) and \(6 \times 40\)? Explain.

**Yes.** \(6 \times 4\) and \(4 \times 6\) both equal 24. So, \(4 \times 60\) and \(6 \times 40\) both equal 240.
Mental Math: Multiplying Multiples of 10, 100, and 1,000

1. $7 \times 60$
2. $6 \times 300$
3. $5 \times 9,000$
4. $3 \times 4,000$
5. $4 \times 70$
6. $9 \times 80$
7. $8 \times 400$
8. $8 \times 5,000$
9. $5 \times 700$
10. $7 \times 9,000$
11. $6 \times 6,000$
12. $3 \times 9,000$

Use the information in the table to solve Exercises 13 and 14.

13. If Mary can say 300 words in 1 minute, how many words can she say in 5 minutes?

14. Both John and Sergio read aloud for 6 minutes. How many more words does John read than Sergio?

<table>
<thead>
<tr>
<th>Person</th>
<th>Number of words said in one minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>200</td>
</tr>
<tr>
<td>Mary</td>
<td>300</td>
</tr>
<tr>
<td>Sergio</td>
<td>400</td>
</tr>
<tr>
<td>John</td>
<td>600</td>
</tr>
</tbody>
</table>

15. Algebra Find the value of $5n$ if $n = 4,000$.

16. Math Reasoning What happens to the product of $2 \times 300$ if both factors are tripled?

17. When a number is multiplied by 8, the product is 64,000. What is the number?

A 80    B 800    C 8,000    D 80,000

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Mental Math: Multiplying Multiples of 10, 100, and 1,000

1. \(7 \times 60\) = 420
2. \(6 \times 300\) = 1,800
3. \(5 \times 9,000\) = 45,000
4. \(3 \times 4,000\) = 12,000
5. \(4 \times 70\) = 280
6. \(9 \times 80\) = 720
7. \(8 \times 400\) = 3,200
8. \(8 \times 5,000\) = 40,000
9. \(5 \times 700\) = 3,500
10. \(7 \times 9,000\) = 63,000
11. \(6 \times 6,000\) = 36,000
12. \(3 \times 9,000\) = 27,000

Use the information in the table to solve Exercises 13 and 14.

13. If Mary can say 300 words in 1 minute, how many words can she say in 5 minutes?
   
   1,500 words

14. Both John and Sergio read aloud for 6 minutes. How many more words does John read than Sergio?
   
   1,200 words

15. Algebra Find the value of \(5n\) if \(n = 4,000\).

   \[20,000\]

16. Math Reasoning What happens to the product of \(2 \times 300\) if both factors are tripled?

   The new product, \(6 \times 900 = 5,400\), is 9 times as great as the original product, \(2 \times 300 = 600\).

Test Prep Circle the correct letter for the answer.

17. When a number is multiplied by 8, the product is 64,000. What is the number?

   A 80       B 800       C 8,000       D 80,000
**Estimating Products**

Round so you can estimate the product mentally.

1. $3 \times 323$  
2. $2 \times \$19.63$  
3. $4,798 \times 6$  
4. $7 \times \$7.35$  
5. $4 \times \$6.94$  
6. $3,052 \times 8$

7. Is 6,704 a reasonable answer for $856 \times 9$? Estimate by finding a range.

8. Is 14,949 a reasonable answer for $3 \times 4,983$? Estimate by finding a range.

9. **Math Reasoning** In the number sentence $7 \times 989$, when you round 989 up to 1,000, will your estimate be more or less than the exact product? Explain.

---

**Test Prep** Circle the correct letter for each answer. Use the information in the table to solve Exercises 10–11.

10. About how much laundry did the four families wash in one month altogether?
   - A About 350 lb
   - B About 250 lb
   - C About 263 lb
   - D About 150 lb

11. Estimate how much more laundry the Adams family did than the King family in 3 months.
   - F About 480 lb
   - G About 204 lb
   - H About 120 lb
   - J About 80 lb

<table>
<thead>
<tr>
<th>Laundry per Month</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family</strong></td>
</tr>
<tr>
<td>Washington</td>
</tr>
<tr>
<td>Carver</td>
</tr>
<tr>
<td>Adams</td>
</tr>
<tr>
<td>King</td>
</tr>
</tbody>
</table>
Estimating Products

Round so you can estimate the product mentally.

1. \(3 \times 323 = \frac{900}{49}\) \(\text{ $49} \)
2. \(2 \times 19.63 = \frac{40}{28}\) \(\text{ $28} \)
3. \(4,798 \times 6 = \frac{30,000}{24,000}\)
4. \(7 \times 7.35 = \frac{900}{49}\)
5. \(4 \times 6.94 = \frac{300}{24}\)
6. \(3,052 \times 8 = \frac{24,000}{19,200}\)

7. Is 6,704 a reasonable answer for \(856 \times 9\)? Estimate by finding a range.
   - No; The answer must be between \(900 \times 9 = 8,100\) and \(800 \times 9 = 7,200\).

8. Is 14,949 a reasonable answer for \(3 \times 4,983\)? Estimate by finding a range.
   - Yes; The answer must be between \(3 \times 5,000 = 15,000\) and \(3 \times 4,000 = 12,000\).

9. Math Reasoning In the number sentence \(7 \times 989\), when you round 989 up to 1,000, will your estimate be more or less than the exact product? Explain.
   - More than; the rounded factor is greater than the original factor.

Test Prep Circle the correct letter for each answer. Use the information in the table to solve Exercises 10–11.

10. About how much laundry did the four families wash in one month altogether?
   - A About 350 lb
   - B About 250 lb
   - C About 263 lb
   - D About 150 lb

11. Estimate how much more laundry the Adams family did than the King family in 3 months.
   - F About 480 lb
   - G About 204 lb
   - H About 120 lb
   - J About 80 lb

<table>
<thead>
<tr>
<th>Family</th>
<th>Numbers of Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington</td>
<td>46</td>
</tr>
<tr>
<td>Carver</td>
<td>37</td>
</tr>
<tr>
<td>Adams</td>
<td>124</td>
</tr>
<tr>
<td>King</td>
<td>56</td>
</tr>
</tbody>
</table>
Multiplying 2-Digit Numbers

Find each product. Estimate to check.

1. \[94 \times 8\]  2. \[32 \times 7\]  3. \[37 \times 4\]  4. \[93 \times 5\]  5. \[85 \times 2\]  6. \[46 \times 8\]  7. \[92 \times 6\]  8. \[29 \times 3\]  9. \[66 \times 8\]  10. \[41 \times 3\]  11. \[80 \times 7\]  12. \[56 \times 7\]  13. \[86 \times 9\]  14. \[57 \times 4\]  15. \[79 \times 6\]  16. \[34 \times 2\]  17. \[33 \times 2\]  18. \[54 \times 8\]  19. \[27 \times 6\]  20. \[81 \times 7\]  21. \[47 \times 2\]

22. Find the product of 5 and 59. ________

23. Find the product of 46 and 4. ________

24. Estimate to decide if the product of 72 and 5 is less than or greater than 300.

25. Use estimation to find the greater product: 903 \(\times\) 2 or 803 \(\times\) 3.
**Answer Key**

**Multiplying 2-Digit Numbers**

Find each product. Estimate to check.

1. \(94 \times 8 = 752\)  
2. \(32 \times 7 = 224\)  
3. \(37 \times 4 = 148\)  
4. \(93 \times 5 = 465\)  
5. \(85 \times 2 = 170\)  
6. \(46 \times 8 = 368\)  
7. \(92 \times 6 = 552\)  
8. \(29 \times 3 = 87\)  
9. \(66 \times 8 = 528\)  
10. \(41 \times 3 = 123\)  
11. \(80 \times 7 = 560\)  
12. \(56 \times 7 = 392\)  
13. \(86 \times 9 = 774\)  
14. \(57 \times 4 = 228\)  
15. \(79 \times 6 = 474\)  
16. \(34 \times 2 = 68\)  
17. \(33 \times 2 = 66\)  
18. \(54 \times 8 = 432\)  
19. \(27 \times 6 = 162\)  
20. \(81 \times 7 = 567\)  
21. \(47 \times 2 = 94\)  
22. Find the product of 5 and 59. \(295\)  
23. Find the product of 46 and 4. \(184\)  
24. Estimate to decide if the product of 72 and 5 is less than or greater than 300.  
    \(\text{Greater than}\)  
25. Use estimation to find the greater product: \(903 \times 2\) or \(803 \times 3\).  
    \(903 \times 2\) is about \(900 \times 2 = 1,800\); \(803 \times 3\) is about \(800 \times 3 = 2,400\). \(2,400\) is the greater product.
Name ________________________________

**Multiplying 3-Digit Numbers**

*Multiply.*

1. \[ 362 \times 9 \]
2. \[ 547 \times 7 \]
3. \[ 396 \times 4 \]
4. \[ 457 \times 8 \]

5. \[ 606 \times 6 \]
6. \[ 421 \times 3 \]
7. \[ 543 \times 9 \]
8. \[ 729 \times 5 \]

9. \[ 622 \times 8 \]
10. \[ 304 \times 8 \]
11. \[ 607 \times 4 \]
12. \[ 705 \times 9 \]

13. \[ 432 \times 6 \]
14. \[ 804 \times 7 \]
15. \[ 618 \times 8 \]
16. \[ 568 \times 7 \]

17. \[ 724 \times 4 \]
18. \[ 365 \times 9 \]
19. \[ 424 \times 6 \]
20. \[ 233 \times 5 \]

21. \[ 198 \times 7 \]
22. \[ 631 \times 3 \]
23. \[ 550 \times 2 \]
24. \[ 875 \times 8 \]

25. \[ 725 \times 8 = \] 
26. \[ 7 \times 953 = \]
27. \[ 6 \times 849 = \]
28. \[ 4 \times 666 = \]

29. Find the product of 6 and 707. ________
30. Find the product of 3 and 214. ________
31. Multiply 6 and 337. ________
32. Multiply 8 and 856. ________
Multiplying 3-Digit Numbers

Multiply.

1. \(362 \times 9 = 3258\)
2. \(547 \times 7 = 3829\)
3. \(396 \times 4 = 1584\)
4. \(457 \times 8 = 3656\)
5. \(606 \times 6 = 3636\)
6. \(421 \times 3 = 1263\)
7. \(543 \times 9 = 4887\)
8. \(729 \times 5 = 3645\)
9. \(622 \times 8 = 4976\)
10. \(304 \times 8 = 2432\)
11. \(607 \times 4 = 2428\)
12. \(705 \times 9 = 6345\)
13. \(432 \times 6 = 2592\)
14. \(804 \times 7 = 5628\)
15. \(618 \times 8 = 4944\)
16. \(568 \times 7 = 3976\)
17. \(724 \times 4 = 2896\)
18. \(365 \times 9 = 3285\)
19. \(424 \times 6 = 2544\)
20. \(233 \times 5 = 1165\)
21. \(198 \times 7 = 1386\)
22. \(631 \times 3 = 1893\)
23. \(550 \times 2 = 1100\)
24. \(875 \times 8 = 7000\)
25. \(725 \times 8 = \boxed{5800}\)
26. \(7 \times 953 = \boxed{6671}\)
27. \(6 \times 849 = \boxed{5094}\)
28. \(4 \times 666 = \boxed{2664}\)

29. Find the product of 6 and 707. \(\boxed{4242}\)
30. Find the product of 3 and 214. \(\boxed{642}\)
31. Multiply 6 and 337. \(\boxed{2022}\)
32. Multiply 8 and 856. \(\boxed{6848}\)
Multiplying with Money

1. $0.95 \times 4

2. $64.22 \times 2

3. $56.26 \times 9

4. $49.50 \times 6

5. $0.79 \times 8

6. $114.65 \times 6

7. $4.37 \times 9

8. $237.92 \times 5


10. Mental Math Find 6 \times $300.00. ________________

Use the table at the right for Exercises 11–13.

11. What would the total cost be to make 3 of each item?

________________________

12. How much would you collect altogether if you sold 4 hats, 2 T-shirts, and 5 buttons?

________________________

13. Marie made $18 for making and then selling 10 of one of the items shown in the table. Which item was she selling?

________________________

Test Prep Choose the correct letter for each answer.

14. Joe bought 6 plates for $5.99 each and 4 glasses for $6.50 each. How much did he spend in all?

A $65.50 \quad B $61.94 \quad C $55.95 \quad D $59.90

15. It costs you $3.75 to make a bird house. How much money do you make if you sell 5 bird houses for $6.00 each?

F $30.00 \quad G $18.75 \quad H $11.25 \quad J $10.25
Multiplying with Money

1. \[0.95 \times 4 = 3.80\]
2. \[64.22 \times 2 = 128.44\]
3. \[56.26 \times 9 = 506.34\]
4. \[49.50 \times 6 = 297.00\]
5. \[0.79 \times 8 = 6.32\]
6. \[114.65 \times 6 = 687.90\]
7. \[4.37 \times 9 = 39.33\]
8. \[237.92 \times 5 = 1189.60\]

9. Andy bought 7 videos at the mall. Each video cost $14.95. How much money did he spend? 
   \[7 \times 14.95 = 104.65\]

10. Mental Math
    Find 6 x $300.00.
    \[6 \times 300 = 1800\]

Use the table at the right for Exercises 11–13.

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost to Make</th>
<th>Selling Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hat</td>
<td>$2.75</td>
<td>$4.55</td>
</tr>
<tr>
<td>T-Shirt</td>
<td>$6.32</td>
<td>$14.10</td>
</tr>
<tr>
<td>Button</td>
<td>$0.58</td>
<td>$0.95</td>
</tr>
</tbody>
</table>

11. What would the total cost be to make 3 of each item?
    \[3 \times (2.75 + 6.32 + 0.58) = 28.95\]

12. How much would you collect altogether if you sold 4 hats, 2 T-shirts, and 5 buttons?
    \[4 \times 4.55 + 2 \times 14.10 + 5 \times 0.95 = 51.15\]

13. Marie made $18 for making and then selling 10 of one of the items shown in the table. Which item was she selling?
    \[\text{hats}\]

Test Prep

14. Joe bought 6 plates for $5.99 each and 4 glasses for $6.50 each. How much did he spend in all?
    \[A \ 65.50 \quad B \ 61.94 \quad C \ 55.95 \quad D \ 59.90\]

15. It costs you $3.75 to make a bird house. How much money do you make if you sell 5 bird houses for $6.00 each?
    \[F \ 30.00 \quad G \ 18.75 \quad H \ 11.25 \quad J \ 10.25\]
Mental Math: Special Products
Use mental math to find each product.

1. $36 \times 4$ _______  
2. $4 \times 18$ _______
3. $22 \times 8$ _______  
4. $23 \times 4$ _______
5. $8 \times 42$ _______  
6. $59 \times 7$ _______
7. $74 \times 3$ _______  
8. $49 \times 4$ _______
9. $68 \times 4$ _______  
10. $44 \times 6$ _______
11. $55 \times 8$ _______  
12. $61 \times 6$ _______
13. $43 \times 6$ _______  
14. $4 \times 36$ _______
15. $54 \times 8$ _______  
16. $22 \times 7$ _______
17. $6 \times 49$ _______  
18. $4 \times 49$ _______
19. $45 \times 4$ _______  
20. $88 \times 9$ _______
21. $4 \times 34$ _______  
22. $6 \times 27$ _______
23. $49 \times 4$ _______  
24. $8 \times 55$ _______
25. $43 \times 5$ _______  
26. $21 \times 5$ _______
27. $8 \times 88$ _______  
28. $14 \times 9$ _______

29. Find the product of 61 and 7 mentally. _______

30. Find the product of 78 and 3 mentally. _______

31. Multiply 5 and 89 mentally. _______

32. Describe how you would find the product of 65 and 5 mentally.

_________________________________________________________________
_________________________________________________________________
## Mental Math: Special Products

Use mental math to find each product.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 36 × 4</td>
<td><strong>144</strong></td>
<td>2. 4 × 18</td>
<td><strong>72</strong></td>
<td></td>
</tr>
<tr>
<td>3. 22 × 8</td>
<td><strong>176</strong></td>
<td>4. 23 × 4</td>
<td><strong>92</strong></td>
<td></td>
</tr>
<tr>
<td>5. 8 × 42</td>
<td><strong>336</strong></td>
<td>6. 59 × 7</td>
<td><strong>413</strong></td>
<td></td>
</tr>
<tr>
<td>7. 74 × 3</td>
<td><strong>222</strong></td>
<td>8. 49 × 4</td>
<td><strong>196</strong></td>
<td></td>
</tr>
<tr>
<td>9. 68 × 4</td>
<td><strong>272</strong></td>
<td>10. 44 × 6</td>
<td><strong>264</strong></td>
<td></td>
</tr>
<tr>
<td>11. 55 × 8</td>
<td><strong>440</strong></td>
<td>12. 61 × 6</td>
<td><strong>366</strong></td>
<td></td>
</tr>
<tr>
<td>13. 43 × 6</td>
<td><strong>258</strong></td>
<td>14. 4 × 36</td>
<td><strong>144</strong></td>
<td></td>
</tr>
<tr>
<td>15. 54 × 8</td>
<td><strong>432</strong></td>
<td>16. 22 × 7</td>
<td><strong>154</strong></td>
<td></td>
</tr>
<tr>
<td>17. 6 × 49</td>
<td><strong>294</strong></td>
<td>18. 4 × 49</td>
<td><strong>196</strong></td>
<td></td>
</tr>
<tr>
<td>19. 45 × 4</td>
<td><strong>180</strong></td>
<td>20. 88 × 9</td>
<td><strong>792</strong></td>
<td></td>
</tr>
<tr>
<td>21. 4 × 34</td>
<td><strong>136</strong></td>
<td>22. 6 × 27</td>
<td><strong>162</strong></td>
<td></td>
</tr>
<tr>
<td>23. 49 × 4</td>
<td><strong>196</strong></td>
<td>24. 8 × 55</td>
<td><strong>440</strong></td>
<td></td>
</tr>
<tr>
<td>25. 43 × 5</td>
<td><strong>215</strong></td>
<td>26. 21 × 5</td>
<td><strong>105</strong></td>
<td></td>
</tr>
<tr>
<td>27. 8 × 88</td>
<td><strong>704</strong></td>
<td>28. 14 × 9</td>
<td><strong>126</strong></td>
<td></td>
</tr>
</tbody>
</table>

29. Find the product of 61 and 7 mentally. **427**

30. Find the product of 78 and 3 mentally. **234**

31. Multiply 5 and 89 mentally. **445**

32. Describe how you would find the product of 65 and 5 mentally.

   **Possible answer:** Think of 65 as 60 + 5. 60 x 5 = 300, 5 x 5 = 25, 300 + 25 = 325
Multiplying 3 Factors
Find each product.
1. \((3 \times 8) \times 5\) = ________  
2. \(7 \times (4 \times 8)\) = ________  
3. \((14 \times 3) \times 6\) = ________  
4. \(6 \times (3 \times 6)\) = ________  
5. \(7 \times (28 \times 3)\) = ________  
6. \((15 \times 2) \times 4\) = ________  
7. \(5 \times (7 \times 7)\) = ________  
8. \(3 \times (81 \times 3)\) = ________  
9. \((25 \times 5) \times 4\) = ________  
10. \((2 \times 6) \times 9\) = ________

Find each product.
11. \(16 \times 4 \times 7\) = ________  
12. \(9 \times 7 \times 13\) = ________  
13. \(5 \times 8 \times 7\) = ________  
14. \(4 \times 12 \times 3\) = ________  
15. \(24 \times 2 \times 5\) = ________  
16. \(6 \times 7 \times 8\) = ________  

17. Write \(9 \times 4 \times 3\) in three different ways.

18. Write \(12 \times 6 \times 8\) in three different ways.

19. Explain how you would find the product of \((4 \times 5) \times 0 \times (6 \times 2) \times 8 \times 3\).

20. Explain how you would find the product of \(15 \times 5 \times 20\).

21. Write three factors. Find their product.
Multiplying 3 Factors
Find each product.

1. \((3 \times 8) \times 5 = 120\)
2. \(7 \times (4 \times 8) = 224\)
3. \((14 \times 3) \times 6 = 252\)
4. \(6 \times (3 \times 6) = 108\)
5. \(7 \times (28 \times 3) = 588\)
6. \((15 \times 2) \times 4 = 120\)
7. \(5 \times (7 \times 7) = 245\)
8. \(3 \times (81 \times 3) = 729\)
9. \((25 \times 5) \times 4 = 500\)
10. \((2 \times 6) \times 9 = 108\)

Find each product.

11. \(16 \times 4 \times 7 = 448\)
12. \(9 \times 7 \times 13 = 819\)
13. \(5 \times 8 \times 7 = 280\)
14. \(4 \times 12 \times 3 = 144\)
15. \(24 \times 2 \times 5 = 240\)
16. \(6 \times 7 \times 8 = 336\)

17. Write \(9 \times 4 \times 3\) in three different ways.
    Possible answers: \((9 \times 4) \times 3\), or \((3 \times 4) \times 9\), or \((9 \times 3) \times 4\)

18. Write \(12 \times 6 \times 8\) in three different ways.
    \(8 \times (12 \times 6)\), or \(12 \times (8 \times 6)\), or \((8 \times 12) \times 6\)

19. Explain how you would find the product of
    \((4 \times 5) \times 0 \times (6 \times 2) \times 8 \times 3\).
    When one of the factors is zero, the product is zero.

20. Explain how you would find the product of \(15 \times 5 \times 20\).
    \(15 \times (5 \times 20) = 15 \times 100 = 1,500\)

21. Write three factors. Find their product.
    Answers will vary.
Exploring Multiplication Patterns
Once you have a basic multiplication fact down, like $6 \times 6 = 36$, multiplying numbers that end in zero (multiples of 10) by tens, hundreds, and thousands is just a matter of tacking on the right number of zeros! Take a look at the pattern:

<table>
<thead>
<tr>
<th>Multiplying by Multiples of 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remember, you can use basic multiplication facts (such as $6 \times 2 = 12$) and what you know about zero (any number times 0 is 0) to help you multiply 2-digit numbers.</td>
</tr>
</tbody>
</table>

Find $40 \times 38$

Multiply 38 by the digit in the ones place: $38 \times 0 = 0$.

Multiply 38 by the digit in the tens place: $38 \times 4 = 152$.

$40 \times 38 = 1,520$

Multiplying with 2-Digit Factors
There are a couple of ways that you can multiply two 2-digit numbers, but you should work toward “multiplying in 2 steps” because it’s quicker. If you’re having trouble with the 2-step method, try writing the zero in the ones place before you multiply the tens.

<table>
<thead>
<tr>
<th>Multiplying in 2 Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find $25 \times 36$</td>
</tr>
<tr>
<td>Step 1: Multiply by ones.</td>
</tr>
<tr>
<td>$3$</td>
</tr>
<tr>
<td>$25$</td>
</tr>
<tr>
<td>$\times$ $36$</td>
</tr>
<tr>
<td>$150$ → $25 \times 6$</td>
</tr>
<tr>
<td>$750$ → $25 \times 30$</td>
</tr>
<tr>
<td>$900$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Multiplying in 4 Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find $46 \times 29$</td>
</tr>
<tr>
<td>$46$</td>
</tr>
<tr>
<td>$\times$ $29$</td>
</tr>
<tr>
<td>$54$ → 1. Multiply $9 \times 6$</td>
</tr>
<tr>
<td>$360$ → 2. Multiply $9 \times 40$</td>
</tr>
<tr>
<td>$120$ → 3. Multiply $20 \times 6$</td>
</tr>
<tr>
<td>$800$ → 4. Multiply $20 \times 40$...Add</td>
</tr>
<tr>
<td>$1,334$</td>
</tr>
</tbody>
</table>
Estimating Greater Products
See “Estimating Products” on previous page.

Choosing a Calculation Method
There are lots of ways to find the answer to a multiplication problem, but depending on the situation, some are better than others! Here are two ways to go about it:

- Numbers that end in 0 (multiples of 10) are easy to multiply in your head. Take 600 x 500. Just multiply the basic fact (6 x 5 = 30). Count the number of zeros in the factors (4) and add them on to the answer (300,000).
- For numbers that require a lot of regrouping, a pencil and paper or a calculator might be the best bet. If you’re using a calculator, remember to “punch” the problem twice to make sure your answer is correct.

Multiplying Money
See the previous “Math Hints” sheet.
Mental Math: Multiplying Multiples of Ten

Use a basic fact you know and a pattern of zeros to multiply mentally.

\[ 70 \times 500 \]

Start with basic facts.

\[ 7 \times 5 = 35 \]
\[ 70 \times 50 = 3,500 \]
\[ 70 \times 500 = 35,000 \]

Remember that the number of zeros in both factors equals the number of zeros in the product.

Find the products using mental math.

1. \( 4 \times 2 = \) ____________
   \( 4 \times 20 = \) ____________
   \( 400 \times 200 = \) ____________

2. \( 5 \times 3 = \) ____________
   \( 5 \times 30 = \) ____________
   \( 500 \times 300 = \) ____________

3. \( 6 \times 1 = \) ____________
   \( 6 \times 10 = \) ____________
   \( 6 \times 100 = \) ____________

4. \( 7 \times 3 = \) ____________
   \( 7 \times 30 = \) ____________
   \( 7 \times 300 = \) ____________

5. \( 400 \times 600 = \) ____________

6. \( 7,000 \times 2,000 = \) ____________

7. \( 50 \times 400 = \) ____________

Use the table to solve Exercises 9–10.

<table>
<thead>
<tr>
<th>Animal Groups</th>
<th>Name</th>
<th>Number in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pod of whales</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Mob of kangaroos</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Colony of penguins</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

9. How many whales would there be in 60 pods? ____________

10. How many penguins would there be in 80 colonies? ____________
Mental Math: Multiplying Multiples of Ten

Find the products using mental math.

1. $4 \times 2 = \underline{8}$
   $4 \times 20 = \underline{80}$
   $400 \times 200 = \underline{80,000}$

2. $5 \times 3 = \underline{15}$
   $5 \times 30 = \underline{150}$
   $500 \times 300 = \underline{150,000}$

3. $6 \times 1 = \underline{6}$
   $6 \times 10 = \underline{60}$
   $6 \times 100 = \underline{600}$

4. $7 \times 3 = \underline{21}$
   $7 \times 30 = \underline{210}$
   $7 \times 300 = \underline{2,100}$

5. $400 \times 600 = \underline{240,000}$

6. $50 \times 400 = \underline{20,000}$

7. $900 \times 60 = \underline{54,000}$

Use the table to solve Exercises 9–10.

9. How many whales would there be in 60 pods?
   
   1,200

10. How many penguins would there be in 80 colonies?
    
   24,000

<table>
<thead>
<tr>
<th>Animal Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Pod of whales</td>
</tr>
<tr>
<td>Mob of kangaroos</td>
</tr>
<tr>
<td>Colony of penguins</td>
</tr>
</tbody>
</table>
**Estimating Products**

Round and estimate the products mentally.

1. \(25 \times 3\)
2. \(39 \times 4\)
3. \(62 \times 5\)
4. \(311 \times 6\)
5. \(1.75 \times 4\)
6. \(603 \times 22\)
7. \(4.93 \times 12\)
8. \(408 \times 62\)
9. \(1,218 \times 78\)
10. \(2,579 \times 78\)
11. \(16 \times 189 = \) _________
12. \(31 \times 137 = \) _________
13. \(27 \times \$19.15 = \) _________
14. \(350 \times 17 = \) _________
15. \(261 \times 41 = \) _________
16. \(2,311 \times 14 = \) _________

17. **Algebra**  When Jessica computed \(47 \times 18\), she got an answer of 8,460. Show how you would estimate to check if her answer is reasonable.

18. **Test Prep**  Circle the correct letter for the answer.

18. If Rosemary’s mother spends about \$20.00 on lunch each week, what is a reasonable estimate of the amount of money she spends on lunch each month?

   A  \$40.00  \hspace{1cm} C  \$140.00
   B  \$80.00  \hspace{1cm} D  \$180.00

19. In one day, 1,265 people visited the Washington Monument. Estimate the number of visitors to the Washington Monument in 28 days.

   F  39,000  \hspace{1cm} H  41,030
   G  26,000  \hspace{1cm} J  30,000
Estimating Products

Round and estimate the products mentally.

1. \(25 \times 3 = 75\)  
2. \(39 \times 4 = 156\)  
3. \(62 \times 5 = 310\)  
4. \(311 \times 6 = 1,866\)  
5. \(1\)\(,750 \times 4 = 7,000\)

6. \(603 \times 22 = 13,266\)  
7. \($4.93 \times 12 = $59.16\)  
8. \(408 \times 62 = 25,456\)  
9. \(1,218 \times 78 = 94,704\)  
10. \(2,579 \times 78 = 200,542\)

11. \(16 \times 189 = 3,024\)  
12. \(31 \times 137 = 4,247\)  
13. \(27 \times $19.15 = $517.05\)  
14. \(350 \times 17 = 5,950\)  
15. \(261 \times 41 = 10,701\)  
16. \(2,311 \times 14 = 32,354\)

17. Algebra  When Jessica computed \(47 \times 18\), she got an answer of 8,460.  
   Show how you would estimate to check if her answer is reasonable.  
   Multiply \(50 \times 20 = 1,000\) to estimate. So, 8,460 is not a reasonable answer.

Test Prep  Circle the correct letter for the answer.

18. If Rosemary’s mother spends about $20.00 on lunch each week, what is a reasonable estimate of the amount of money she spends on lunch each month?
   A  $40.00   C  $140.00
   B  $80.00   D  $180.00

19. In one day, 1,265 people visited the Washington Monument. Estimate the number of visitors to the Washington Monument in 28 days.
   F  39,000   H  41,030
   G  26,000   J  30,000
Multiplying by a Multiple of Ten

1. 20 × 15  
   2. 50 × 46  
   3. 60 × 272  
   4. 80 × 1,507  
   5. 30 × 3,317

6. 96 × 20  
7. 6,507 × 70  
8. 50 × 45  
9. 40 × 95

10. 20 × 30  
11. 90 × 633  
12. 60 × 82  
13. 20 × 2,270


15. Algebra  Find the value of 70x + 84 when x is 65.

16. If 25 children flew 23 kites on 27 out of 365 days, on how many days that year did children not fly kites?

17. Math Reasoning  What happens to any product if both factors are cut in half?

Test Prep  Circle the correct letter for each answer.

18. New World monkeys, the kind found in the rain forest in South America, have 36 teeth. Most monkeys live in groups of 20. What is the total number of teeth one group of 20 New World monkeys has?
   A 400  B 720  C 760  D 1,440

19. Old World monkeys have 32 teeth. What is the total number of teeth one 20-monkey group has?
   F 640  G 460  H 520  J 1,280
### Multiplying by a Multiple of Ten

1. \(15 \times 20 = 300\)
2. \(46 \times 50 = 2300\)
3. \(272 \times 60 = 16320\)
4. \(1507 \times 80 = 120560\)
5. \(3317 \times 30 = 99510\)
6. \(20 \times 96 = 1920\)
7. \(70 \times 6507 = 455490\)
8. \(45 \times 50 = 2250\)
9. \(95 \times 40 = 3800\)
10. \(30 \times 445 = 13350\)
11. \(633 \times 90 = 56970\)
12. \(82 \times 60 = 4920\)
13. \(2270 \times 20 = 45400\)

### Mental Math

Find \(98 \times 30\). 2940

### Algebra

Find the value of \(70x + 84\) when \(x\) is 65. 4634

### Test Prep

16. If 25 children flew 23 kites on 27 out of 365 days, on how many days that year did children not fly kites? 338 days

17. Math Reasoning

What happens to any product if both factors are cut in half? The product is 4 times smaller.

### Test Prep

Circle the correct letter for each answer.

18. New World monkeys, the kind found in the rain forest in South America, have 36 teeth. Most monkeys live in groups of 20. What is the total number of teeth one group of 20 New World monkeys has?

   \[\begin{array}{c}
   A \ 400 \\
   B \ 720 \\
   C \ 760 \\
   D \ 1,440
   \end{array}\]

   **Answer:** B

19. Old World monkeys have 32 teeth. What is the total number of teeth one 20-monkey group has?

   \[\begin{array}{c}
   F \ 640 \\
   G \ 460 \\
   H \ 520 \\
   J \ 1,280
   \end{array}\]

   **Answer:** F
Multiplying by Two-Digit Numbers

1. \(54 \times 14\)  
2. \(63 \times 35\)  
3. \(77 \times 36\)  
4. \($0.57 \times 51\)  
5. \(82 \times 44\)

6. \($0.70 \times 45\)
7. \(49 \times 98\)
8. \(96 \times 23\)
9. \(21 \times 97\)
10. \(94 \times 96\)

11. \(31 \times 56\)
12. \($0.65 \times 16\)
13. \(72 \times 27\)
14. \(75 \times $0.99\)

15. To raise money for the band trip, 13 students showed up to help at the Benefit the Band Car Wash. They charged $12 for a car wash and by the end of the day had washed a total of 68 cars. How much money did they earn?

16. Algebra Find the value of \(56 \times n\) when \(n = 82\).

17. Math Reasoning Find \(47 \times 45\) and explain your answer.

Test Prep Circle the correct letter for each answer.

18. A fourth-grade class made its own cartoon. Each student made 8 drawings every day for 3 days. There were 27 students in the class. How many drawings did they make?
   
   A 216  B 648  C 81  D 612

19. Your class decides to make 2 cartoons that are each 9 seconds long. Each second requires 24 drawings. How many drawings will your class have to make?
   
   F 324  G 432  H 216  J 612
### Multiplying by Two-Digit Numbers

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>54</td>
<td>63</td>
<td>77</td>
<td>$0.57$</td>
<td>82</td>
<td>$0.70$</td>
</tr>
<tr>
<td>$\times$ 14</td>
<td>$\times$ 35</td>
<td>$\times$ 36</td>
<td>$\times$ 51</td>
<td>$\times$ 44</td>
<td>$\times$ 45</td>
</tr>
<tr>
<td>756</td>
<td>2,205</td>
<td>2,772</td>
<td>$29.07$</td>
<td>3,608</td>
<td>$31.50$</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
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</tr>
<tr>
<td>31 $\times$ 56</td>
<td>$0.65 \times$ 16</td>
<td>72 $\times$ 27</td>
<td>75 $\times$ $0.99$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,736</td>
<td>$10.40$</td>
<td>1,944</td>
<td>$74.25$</td>
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</tr>
</tbody>
</table>

15. To raise money for the band trip, 13 students showed up to help at the Benefit the Band Car Wash. They charged $12 for a car wash and by the end of the day had washed a total of 68 cars. How much money did they earn?

$816$

16. **Algebra** Find the value of $56 \times n$ when $n = 82$. __4,592__

17. **Math Reasoning** Find $47 \times 45$ and explain your answer.

\[
47 \times 45 = 2,115 \\
45 \times 47 = 45 \times (40 + 7) \\
\quad = (45 \times 40) + (45 \times 7) \\
\quad = 1,800 + 315 \\
\quad = 2,115
\]

18. **Test Prep** Circle the correct letter for each answer.

18. A fourth-grade class made its own cartoon. Each student made 8 drawings every day for 3 days. There were 27 students in the class. How many drawings did they make?

- **A** 216
- **B** 648
- **C** 81
- **D** 612

19. Your class decides to make 2 cartoons that are each 9 seconds long. Each second requires 24 drawings. How many drawings will your class have to make?

- **F** 324
- **G** 432
- **H** 216
- **J** 612

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Estimating Greater Products

Estimate each product.

1. $595 \times 41 = \underline{}$
2. $395 \times 68 = \underline{}$
3. $215 \times 38 = \underline{}$
4. $632 \times 63 = \underline{}$
5. $489 \times 53 = \underline{}$
6. $553 \times 47 = \underline{}$
7. $717 \times 38 = \underline{}$
8. $837 \times 91 = \underline{}$
9. $672 \times 21 = \underline{}$
10. $513 \times 35 = \underline{}$
11. $491 \times 78 = \underline{}$
12. $323 \times 46 = \underline{}$
13. $288 \times 68 = \underline{}$
14. $821 \times 59 = \underline{}$
15. $428 \times 27 = \underline{}$
16. $351 \times 76 = \underline{}$
17. $591 \times 42 = \underline{}$
18. $120 \times 89 = \underline{}$
19. $276 \times 68 = \underline{}$
20. $364 \times 89 = \underline{}$
21. $375 \times 64 = \underline{}$
22. $928 \times 85 = \underline{}$
23. $672 \times 33 = \underline{}$
24. $794 \times 39 = \underline{}$
25. $620 \times 83 = \underline{}$
26. $575 \times 71 = \underline{}$
27. $931 \times 84 = \underline{}$
28. $506 \times 49 = \underline{}$

29. Estimate the product of 549 and 68.
30. Estimate the product of 978 and 61.
31. Write two different sets of factors that you estimate would have a product of about 40,000.
### Answer Key

#### Estimating Greater Products

Estimate each product.

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>$595 \times 41 = 24,000$</td>
<td>2.</td>
<td>$395 \times 68 = 28,000$</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>$215 \times 38 = 8,000$</td>
<td>4.</td>
<td>$632 \times 63 = 36,000$</td>
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</tr>
<tr>
<td>5.</td>
<td>$489 \times 53 = 25,000$</td>
<td>6.</td>
<td>$553 \times 47 = 30,000$</td>
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<tr>
<td>7.</td>
<td>$717 \times 38 = 28,000$</td>
<td>8.</td>
<td>$837 \times 91 = 72,000$</td>
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<tbody>
<tr>
<td>9.</td>
<td>$6 \times 7 \times 2 = 14,000$</td>
<td>10.</td>
<td>$5 \times 1 \times 3 = 20,000$</td>
</tr>
<tr>
<td>11.</td>
<td>$4 \times 9 \times 1 = 40,000$</td>
<td>12.</td>
<td>$3 \times 2 \times 3 = 15,000$</td>
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<tbody>
<tr>
<td>13.</td>
<td>$2 \times 8 \times 8 = 21,000$</td>
<td>14.</td>
<td>$8 \times 2 \times 1 = 48,000$</td>
</tr>
<tr>
<td>15.</td>
<td>$4 \times 2 \times 8 = 12,000$</td>
<td>16.</td>
<td>$3 \times 5 \times 1 = 32,000$</td>
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<tr>
<td>17.</td>
<td>$5 \times 9 \times 1 = 24,000$</td>
<td>18.</td>
<td>$1 \times 2 \times 0 = 9,000$</td>
</tr>
<tr>
<td>19.</td>
<td>$2 \times 7 \times 6 = 21,000$</td>
<td>20.</td>
<td>$3 \times 6 \times 4 = 36,000$</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>21.</td>
<td>$3 \times 7 \times 5 = 24,000$</td>
<td>22.</td>
<td>$9 \times 2 \times 8 = 81,000$</td>
</tr>
<tr>
<td>23.</td>
<td>$6 \times 7 \times 2 = 21,000$</td>
<td>24.</td>
<td>$7 \times 9 \times 4 = 32,000$</td>
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<tr>
<td>25.</td>
<td>$6 \times 2 \times 0 = 48,000$</td>
<td>26.</td>
<td>$5 \times 7 \times 5 = 42,000$</td>
</tr>
<tr>
<td>27.</td>
<td>$9 \times 3 \times 1 = 72,000$</td>
<td>28.</td>
<td>$5 \times 0 \times 6 = 25,000$</td>
</tr>
</tbody>
</table>

29. Estimate the product of 549 and 68. $35,000$

30. Estimate the product of 978 and 61. $60,000$

31. Write two different sets of factors that you estimate would have a product of about 40,000.

   Possible answer: Any factors that round to $50 \times 800$ or $80 \times 500$, such as $49 \times 788$ or $77 \times 465$.  

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Choosing a Calculation Method
Find each product. Estimate to check.

1. $113 \times 48$
2. $425 \times 15$
3. $6000 \times 70$
4. $3050 \times 31$
5. $575 \times 32$
6. $214 \times 21$
7. $5000 \times 70$
8. $2060 \times 30$
9. $2164 \times 13$
10. $4625 \times 14$
11. $4633 \times 15$
12. $2037 \times 38$

13. $15 \times 2160 = \text{___________}$
14. $14 \times 2322 = \text{___________}$
15. $2124 \times 37 = \text{___________}$
16. $777 \times 14 = \text{___________}$
17. $3104 \times 33 = \text{___________}$
18. $305 \times 305 = \text{___________}$

19. Find the product of 263 and 15. \text{___________}
20. Find the product of 4269 and 12. \text{___________}
21. Find the product of 1321 and 11. \text{___________}
22. How would you use mental math to find the product of 280 and 100?

\text{___________}

23. How many digits are in the product of 676 and 78?

\text{___________}
Name ____________________________________________

**Multiplying Money**
Multiply. Estimate to check.

1. $12 \times \$1.55 = \underline{\phantom{00}}$
2. $23 \times \$3.39 = \underline{\phantom{00}}$
3. $11 \times \$5.91 = \underline{\phantom{00}}$
4. $21 \times \$6.99 = \underline{\phantom{00}}$
5. $15 \times \$2.67 = \underline{\phantom{00}}$
6. $10 \times \$16.02 = \underline{\phantom{00}}$

7. $\begin{array}{c}
16.35 \\
\underline{\times 14}
\end{array} = \underline{\phantom{00}}$
8. $\begin{array}{c}
40.31 \\
\underline{\times 18}
\end{array} = \underline{\phantom{00}}$
9. $\begin{array}{c}
17.06 \\
\underline{\times 23}
\end{array} = \underline{\phantom{00}}$
10. $\begin{array}{c}
19.86 \\
\underline{\times 19}
\end{array} = \underline{\phantom{00}}$

11. $\begin{array}{c}
5.45 \\
\underline{\times 12}
\end{array} = \underline{\phantom{00}}$
12. $\begin{array}{c}
8.36 \\
\underline{\times 16}
\end{array} = \underline{\phantom{00}}$
13. $\begin{array}{c}
8.05 \\
\underline{\times 33}
\end{array} = \underline{\phantom{00}}$
14. $\begin{array}{c}
9.15 \\
\underline{\times 56}
\end{array} = \underline{\phantom{00}}$

15. $\begin{array}{c}
6.45 \\
\underline{\times 45}
\end{array} = \underline{\phantom{00}}$
16. $\begin{array}{c}
16.89 \\
\underline{\times 28}
\end{array} = \underline{\phantom{00}}$
17. $\begin{array}{c}
12.75 \\
\underline{\times 41}
\end{array} = \underline{\phantom{00}}$
18. $\begin{array}{c}
17.72 \\
\underline{\times 27}
\end{array} = \underline{\phantom{00}}$

19. Find the product of $14.89$ and $14$. \underline{\phantom{00}}

20. Multiply $4.37$ by $25$. \underline{\phantom{00}}

21. Could you buy 13 posters at $7.50 each with $100? Explain.


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Answer Key

**Multiplying Money**
Multiply. Estimate to check.

1. \(12 \times \$1.55 = \$18.60\)
2. \(23 \times \$3.39 = \$77.97\)
3. \(11 \times \$5.91 = \$65.01\)
4. \(21 \times \$6.99 = \$146.79\)
5. \(15 \times \$2.67 = \$40.05\)
6. \(10 \times \$16.02 = \$160.20\)

7. \(\begin{array}{c}
6.35 \\
\times 14
\end{array}\)
\[\begin{array}{c}
228.90
\end{array}\]
8. \(\begin{array}{c}
40.31 \\
\times 18
\end{array}\)
\[\begin{array}{c}
725.58
\end{array}\]
9. \(\begin{array}{c}
17.06 \\
\times 23
\end{array}\)
\[\begin{array}{c}
392.38
\end{array}\]
10. \(\begin{array}{c}
19.86 \\
\times 19
\end{array}\)
\[\begin{array}{c}
377.34
\end{array}\]

11. \(\begin{array}{c}
5.45 \\
\times 12
\end{array}\)
\[\begin{array}{c}
65.40
\end{array}\]
12. \(\begin{array}{c}
8.36 \\
\times 16
\end{array}\)
\[\begin{array}{c}
133.76
\end{array}\]
13. \(\begin{array}{c}
8.05 \\
\times 33
\end{array}\)
\[\begin{array}{c}
265.65
\end{array}\]
14. \(\begin{array}{c}
9.15 \\
\times 56
\end{array}\)
\[\begin{array}{c}
512.40
\end{array}\]

15. \(\begin{array}{c}
6.45 \\
\times 45
\end{array}\)
\[\begin{array}{c}
290.25
\end{array}\]
16. \(\begin{array}{c}
16.89 \\
\times 28
\end{array}\)
\[\begin{array}{c}
472.92
\end{array}\]
17. \(\begin{array}{c}
12.75 \\
\times 41
\end{array}\)
\[\begin{array}{c}
522.75
\end{array}\]
18. \(\begin{array}{c}
17.72 \\
\times 27
\end{array}\)
\[\begin{array}{c}
478.44
\end{array}\]

19. Find the product of \$14.89 and 14. \[\$208.46\]

20. Multiply \$4.37 by 25. \[\$109.25\]

21. Could you buy 13 posters at \$7.50 each with \$100?
   Explain.
   Yes. \(13 \times \$7.50 = \$97.50\).

22. Could you buy 25 posters at \$7.50 each with \$170?
   Explain.
   No. \(25 \times \$7.50 = \$187.50\).
Choosing a Calculation Method

Find each product. Estimate to check.

1. \(113 \times 48 = 5,424\)
2. \(425 \times 15 = 6,375\)
3. \(6,000 \times 70 = 420,000\)
4. \(3,050 \times 31 = 94,550\)
5. \(575 \times 32 = 18,400\)
6. \(214 \times 21 = 4,494\)
7. \(5,000 \times 70 = 350,000\)
8. \(2,060 \times 30 = 61,800\)
9. \(2,164 \times 13 = 28,132\)
10. \(4,625 \times 14 = 64,750\)
11. \(4633 \times 15 = 69,495\)
12. \(2,037 \times 38 = 77,406\)

13. \(15 \times 2,160 = 32,400\)
14. \(14 \times 2,322 = 32,508\)
15. \(2,124 \times 37 = 78,588\)
16. \(777 \times 14 = 10,878\)
17. \(3,104 \times 33 = 102,432\)
18. \(305 \times 305 = 93,025\)

19. Find the product of 263 and 15. \(3,945\)
20. Find the product of 4,269 and 12. \(51,228\)
21. Find the product of 1,321 and 11. \(14,531\)
22. How would you use mental math to find the product of 280 and 100?
   Multiply 28 times 1 and add 3 zeros.
23. How many digits are in the product of 676 and 78?
   5 digits