4th Grade
CCSS Math Practice
4.0a.4
Factors & Multiples

By: Kathleen & Mande'
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Multiples
A multiple is the product of two numbers.

Example: \(3 \times 5 = 15\)  
15 is a multiple of 3 and 5.

To find multiples, you can skip count or multiply.

The first 5 multiples of 4...
4, 8, 12, 16, 20

The first 5 multiples of 9...
9, 18, 27, 36, 45

Write the first five multiples for the number below.

1. 5
   __   __   __   __   __

2. 7
   __   __   __   __   __

3. 12
   __   __   __   __   __

4. 3
   __   __   __   __   __

5. 2
   __   __   __   __   __

6. 11
   __   __   __   __   __

Look at each set of 4 numbers below. Determine which number these are multiples of. Then, complete the pattern with the next 2 multiples.

7. 12, 18, 24, 30, ___, ___  
   These are multiples of ___.

8. 40, 50, 60, ___, ___  
   These are multiples of ___.

9. 32, 40, 48, 56, ___, ___  
   These are multiples of ___.

10. 8, 10, 12, 14, ___, ___  
    These are multiples of ___.
Multiples of 2, 5, and 10

Is a number a multiple of 2, 5, or 10? Look at the last digit.

### Multiples of 2
- End in 0, 2, 4, 6, or 8
- Ex: 12, 428, 94, 8, 60, 32

### Multiples of 5
- End in 0 or 5
- Ex: 25, 90, 135, 5, 40, 70

### Multiples of 10
- End in 0
- Ex: 90, 20, 100, 400, 30

Circle the numbers that are multiples of each given number.

1. 2  3  4  5  6  7  11  13  16  24  28  31  45  46  52
2. 5  3  5  10  12  15  23  29  35  41  50  56
3. 10 2  5  10  18  34  40  45  55  72  75  90

Answer yes or no for each question below.

4. Is 74 a multiple of 2? ______ 5. Is 63 a multiple of 5? ______
10. Is 54 a multiple of 10? ______ 11. Is 70 a multiple of 2? ______

List the first 10 multiples for each number. Circle the common multiples.

14. 2 ______ ______ ______ ______ ______ ______ ______ ______
15. 5 ______ ______ ______ ______ ______ ______ ______ ______
16. 10 ______ ______ ______ ______ ______ ______ ______ ______
Multiples of 3
To determine if a number is a multiple of 3, add the digits. If the sum of the digits is a multiple of 3, the number is a multiple of 3.

Examples:
72 \(7 + 2 = 9\) \(\checkmark\) 9 is a multiple of 3, so 72 is a multiple of 3
51 \(5 + 1 = 6\) \(\checkmark\) 6 is a multiple of 3, so 51 is a multiple of 3
26 \(2 + 6 = 8\) \(\times\) 8 is a NOT a multiple of 3, so 26 is NOT a multiple of 3
87 \(8 + 7 = 15\) ... If the sum is 2 digits, you can add those numbers.
\(1 + 5 = 6\) \(\checkmark\) 6 is a multiple of 3, so 51 is a multiple of 3

Find the sum of the digits below. Is the number a multiple of 3? Circle yes or no.
1. \(36\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
2. \(82\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
3. \(45\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
4. \(56\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
5. \(79\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
6. \(90\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
7. \(18\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No
8. \(66\) \(\_\_ + \_\_ = \_\_\) Multiple of 3? Yes No

9. List the first 10 multiples of 3. \(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\)

10. Is 54 a multiple of 3? _____
11. Is 76 a multiple of 3? _____
Put It All Together: Multiples of 2, 3, 5, and 10

Circle the numbers that are multiples of each given number.

1. 2 4 9 14 19 26 30 37 44 53 69 78
2. 3 3 9 10 17 18 24 28 31 45 49 57
3. 5 24 25 30 36 43 46 52 55 61 75 93
4. 10 5 10 13 38 45 50 60 68 75 80 100

Answer yes or no for each question below.


List the first 5 multiples for each number.

15. 2 _____, _____, _____, _____, _____
16. 3 _____, _____, _____, _____, _____
17. 5 _____, _____, _____, _____, _____
18. 10 _____, _____, _____, _____, _____

19. Is the number below a multiple of...

20. Is the number below a multiple of...
Multiples of 6
Six is a multiple of 2 and 3. If a number is a multiple of 2 and 3, then it is also a multiple of 6.

<table>
<thead>
<tr>
<th>Multiples of 2</th>
<th>Multiples of 3</th>
<th>Multiples of 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>End in 0, 2, 4, 6, or 8</td>
<td>The sum of the digits is a multiple of 3</td>
<td>Are multiples of 2 and 3</td>
</tr>
<tr>
<td>Ex: 12, 42, 94, 8, 60, 32</td>
<td>Ex: 63, 6 + 3 = 9</td>
<td>Ex: 24, 2 + 4 = 6</td>
</tr>
</tbody>
</table>

Circle the numbers that are multiples of each given number.

1. 2 6 10 12 15 18 21 28 30 33 36 41
2. 3 6 10 12 15 18 21 28 30 33 36 41
3. 6 6 10 12 15 18 21 28 30 33 36 41

Answer yes or no for each question below.

4. Is 26 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

5. Is 42 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

6. Is 39 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

7. Is 54 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

8. Is 83 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

9. Is 36 a multiple of 2? __________
   multiple of 3? __________
   multiple of 6? __________

10. List the first 10 multiples of 6. ____________
    ____________
    ____________

11. Is 88 a multiple of 6? __________
    12. Is 72 a multiple of 6? __________
Multiples & Venn Diagrams (2, 3, & 5)
Use Venn diagrams to show common factors.

In each Venn diagram below, place all numbers. Decide if each number is a multiple of the first number or the second number. If it is a multiple of both numbers, it goes in the center. If it is not a multiple of either number, place it outside of the diagram.

1. Multiples of 2 and 3
Place the following numbers: 4, 6, 11, 15, 18, 20, 23, 24, 33, 39, 41, 45, 48, 52, 54

Numbers that are multiples of 2 and 3 are multiples of ____.

2. Multiples of 2 and 5
Place the following numbers: 3, 5, 6, 10, 12, 15, 17, 25, 30, 33, 35, 36, 40, 42, 55

Numbers that are multiples of 2 and 5 are multiples of ____.
Put It All Together: Multiples of 2, 3, 5, 6, and 10

Circle the numbers that are multiples of each given number.

1. 2 16 43 97 86 30 59 64 12 23 38 55
2. 3 15 96 48 19 25 33 61 70 72 58 63
3. 5 42 35 60 47 21 20 35 54 49 40 65
4. 6 32 36 16 60 24 97 35 54 49 40 65
5. 10 20 35 95 48 80 60 25 15 100 99 30

Answer yes or no for each question below.

6. Is 48 a multiple of 2? _____
7. Is 72 a multiple of 3? _____
8. Is 36 a multiple of 6? _____
9. Is 40 a multiple of 10? _____
10. Is 55 a multiple of 10? _____
11. Is 33 a multiple of 6? _____
12. Is 75 a multiple of 5? _____
13. Is 27 a multiple of 2? _____
15. Is 63 a multiple of 5? _____

16. Harry is 30 years old. Is his age a multiple of….

17. Lance has some cards. This number of cards is a multiple of 2 and 5. How many cards could Lance have?
   A. 14   B. 15
   B. 20   C. 25

18. Bella bought new pencils. The number of pencils is a multiple of 2 and 3, but is not a multiple of 10. How many pencils could Bella have?
   A. 24   B. 27
   C. 30   D. 34
Multiples of 9
A multiple of 9 must be a multiple of 3. The multiple rule for 9 is similar to the multiple rule for 3. To determine if a number is a multiple of 9, add the digits. If the sum of the digits is a multiple of 9, the number is a multiple of 9.

Examples:
72  $7 + 2 = 9$  $\checkmark$  9 is a multiple of 9, so 72 is a multiple of 9
45  $4 + 5 = 9$  $\checkmark$  9 is a multiple of 9, so 45 is a multiple of 9
34  $3 + 4 = 7$  $\times$  7 is a NOT a multiple of 9, so 34 is NOT a multiple of 9
288  $2 + 8 + 8 = 18$... If the sum is 2 digits, you can add those numbers.
     1 + 8 = 9  $\checkmark$  9 is a multiple of 9, so 288 is a multiple of 9

Find the sum of the digits below. Is the number a multiple of 9? Circle yes or no.

1. 36  ___ + ___ = ___  Multiple of 9?  Yes  No
2. 56  ___ + ___ = ___  Multiple of 9?  Yes  No
3. 78  ___ + ___ = ___  Multiple of 9?  Yes  No
4. 99  ___ + ___ = ___  Multiple of 9?  Yes  No
5. 43  ___ + ___ = ___  Multiple of 9?  Yes  No
6. 27  ___ + ___ = ___  Multiple of 9?  Yes  No
7. 144  ___ + ___ + ___ = ___  Multiple of 9?  Yes  No
8. 316  ___ + ___ + ___ = ___  Multiple of 9?  Yes  No
Multiples of 4 and 8
To determine if a number is a multiple of 4 or 8, first determine if the number is an even number. If it is odd, it cannot be a multiple of 4 or 8. Then, you will need to skip count or think of your multiplication facts to determine if it is a multiple of 4 or 8.

Examples:
35 35 is not even, so it cannot be a multiple of either 4 or 8.

14 14 is even, so it might be a multiple of 4 or 8.
I know 4 x 3 = 12 and 4 x 4 = 16, so 14 is NOT a multiple of 4.
If a number is not a multiple of 4, it cannot be a multiple of 8.

20 20 is even, so it might be a multiple of 4 or 8.
I know 4 x 5 = 20, so 20 is a multiple of 4.
I know 8 x 2 = 16 and 8 x 3 = 24, so 20 is NOT a multiple of 8.

Answer yes or no for each question below.

1. Is 25 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

2. Is 18 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

3. Is 44 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

4. Is 36 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

5. Is 32 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

6. Is 63 a multiple of 2? __
   multiple of 4? __
   multiple of 8? __

List the first 10 multiples for each number. Circle the common multiples.

7. 4  __ __ __ __ __ __ __ __ __ __

8. 8  __ __ __ __ __ __ __ __ __ __
Multiples & Venn Diagrams (3, 4, & 5)

Use Venn diagrams to show common factors.

In each Venn diagram below, place all numbers. Decide if each number is a multiple of the first number or the second number. If it is a multiple of both numbers, it goes in the center. If it is not a multiple of either number, place it outside of the diagram.

1. Multiples of 3 and 4

Place the following numbers: \(3, 6, 8, 10, 12, 15, 16, 18, 21, 22, 24, 28, 33, 36, 42\)

Numbers that are multiples of 3 and 4 are multiples of ____.

2. Multiples of 4 and 5

Place the following numbers: \(4, 5, 8, 10, 12, 15, 18, 20, 24, 25, 29, 30, 36, 40, 47\)

Numbers that are multiples of 4 and 5 are multiples of ____.
Multiples of 7 and 11
Is a number a multiple of 7 or 11?

<table>
<thead>
<tr>
<th>Multiples of 7</th>
<th>Multiples of 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no short cut to find the multiples of 7. ✗ You must skip count or think of your multiplication facts x 7.</td>
<td>For 2 digit numbers, the multiples of 11 have double the same digit. * This is not true of 3 digit numbers. 222 is not a multiple of 11.</td>
</tr>
<tr>
<td>Examples:</td>
<td>Examples:</td>
</tr>
<tr>
<td>35 is a multiple of 7 because 7 x 5 = 35</td>
<td>44 is a multiple of 11 because 4 x 11 = 44</td>
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<tr>
<td>43 is NOT a multiple of 7 because 7 x 6 = 42, so 43 would not be a multiple of 7.</td>
<td>77 is a multiple of 11 because 7 x 11 = 77</td>
</tr>
</tbody>
</table>

Circle the numbers that are multiples of each given number.
1. 7 7 12 14 23 28 38 48 49 59 61 63
2. 11 13 22 23 33 39 55 56 67 71 88 98

List the first 10 multiples for each number.
3. 7 ________________
4. 11 ________________

Answer yes or no for each question below.
7. Is 37 a multiple of 7? ______ 8. Is 75 a multiple of 11? ______
Multiples Rules & Strategies Reference Chart

Use this chart to fill in the multiple rules/strategies as you learn them. These rules are also referred to as “Divisibility Rules.” This means when you divide a number by this number, you will not have a remainder.

<table>
<thead>
<tr>
<th>Number</th>
<th>Rule or Strategy</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
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<td>10</td>
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<tr>
<td>11</td>
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</tbody>
</table>
Multiples: Multiple Choice

Use your divisibility rules to answer multiple choice questions.

Example:
Karen has some stickers. The number of stickers she has is a multiple of 2 and 3, but the number is not a multiple of 5. How many stickers could Karen have?

A. 44 stickers   B. 48 stickers   C. 60 stickers   D. 63 stickers

Step 1: Eliminate choice D (63) because it is not even. (It is not a multiple of 2)
Step 2: Eliminate choice C (60) because it ends in a 5. (It is a multiple of 5)
Step 3: Add the digits of the last 2 choices to see which is a multiple of 3.
4 + 4 = 8   4 + 8 = 12
12 is a multiple of 3, so 48 is a multiple of 3.

Select the best answer choice for each question below. Use your multiples rules and strategies to eliminate answer choices.

1. In Mrs. Johnson’s class, the students took a survey of their favorite subject. The number of students who voted for math is a multiple of 2 and 3. How many students could have voted for math?
   A. 15 students   B. 16 students   C. 18 students   D. 19 students

2. Emerson invited some of her friends to spend the night for her birthday party. The number of friends she invited is a multiple of 4. How many friends could Emerson have invited to her birthday party?
   A. 10 friends   B. 12 friends   C. 13 friends   D. 14 friends

3. A plant is full of cute little ladybugs. The number of ladybugs on the leaf is a multiple of 3 and 5, but not a multiple of 2. How many ladybugs are on the plant?
   A. 45 ladybugs   B. 48 ladybugs   C. 50 ladybugs   D. 55 ladybugs

4. On a beautiful sunny day, there are many sailboats on the lake. The number of sailboats is a multiple of 2 and 7. How many sailboats are on the lake?
   A. 21 boats   B. 28 boats   C. 35 boats   D. 38 boats

5. Mrs. Stevenson has 24 students. She wants to use her knowledge of multiples to put her students into equal groups. Which is not a possible number of groups Mrs. Stevenson can have if she wants her 24 students in equal groups?
   A. 3 groups   B. 4 groups   C. 5 groups   D. 6 groups
Finding Factor Pairs

A factor is a number that can be multiple by another number to get a product/multiple. The two factors multiplied are called factor pairs.

Example: \( 3 \times 4 = 12 \)  
\[ \text{factor} \times \text{factor} = \text{multiple} \]
Together, they are factor pairs.

To find factor pairs of a number, think of which two numbers can be multiplied together to get a given number. Use the divisibility rules you have learned. Start with the number 1 and check the rule for each number.

Example 1 - Find the factors of 15.

1. 1 x 15
   The first factor pair of every number is 1 x itself.

2. -
   15 is odd. You can rule out all even factors, because odd numbers only have odd factors.

3. 3 x 5
   3 is a factor of 15 because \( 1 + 5 = 6 \). 6 is a multiple of 3.

4. -
   15 is odd, so it only has odd factors. 4 is even.

5. 5 x 3
   15 ends in a 5, so it is a multiple of 5.

You can stop here because you have now repeated a factor pair: 3 x 5 and 5 x 3. There are no more factor pairs to find.

The factors of 15 are 1, 3, 5, and 15.

Example 2 - Find the factors of 24.

1. 1 x 24
   The first factor pair of every number is 1 x itself.

2. 2 x 12
   24 is even. All even numbers have 2 as a factor.

3. 3 x 8
   3 is a factor of 24 because \( 2 + 4 = 6 \). 6 is a multiple of 3.

4. 4 x 6
   Look at the factor pair for 2. \( 24 = 2 \times 12 \)
   If you can divide the factor pair for 2 in half, then the number also has 4 as a factor.
   Half of 12 is 6, so 4 x 6 = 24

5. -
   24 does not end in a 5 or 0.

6. 6 x 4
   24 has 2 and 3 as factors, so 6 will also be a factor.

You can stop here because you have now repeated a factor pair: 4 x 6 and 6 x 4. There are no more factor pairs to find.

The factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24.
Finding Factor Pairs

To find factor pairs of a number, think of which two numbers can be multiplied together to get a given number. Use your divisibility rules. Start with the number 1 and check the rule for each number.

Example 1 - Find the factors of 30.

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>The first factor pair of every number is 1 x itself.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>30 is even. All even numbers have 2 as a factor.</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3 is a factor of 30 because $3 + 0 = 3$. 3 is a multiple of 3.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>30 = 2 x 15; 15 is odd, so it cannot be split in half. To have 4</td>
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<td></td>
<td>5</td>
<td>30 ends in a 0, so it is a multiple of 5.</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>2 and 3 are both factors of 30, so 6 is also a factor.</td>
</tr>
</tbody>
</table>

You can stop here because you have now repeated a factor pair: 5 x 6 and 6 x 5. There are no more factor pairs to find.

The factors of 30 are 1, 2, 3, 5, 6, 10, 15, and 30.

Find all factor pairs for each number below using your divisibility rules.

<table>
<thead>
<tr>
<th></th>
<th>Factor Pairs of 20</th>
<th>Factor Pairs of 32</th>
<th>Factor Pairs of 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>____ x ____</td>
<td>____ x ____</td>
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Factors of 20: __________

Factors of 32: __________

Factors of 45: __________

<table>
<thead>
<tr>
<th></th>
<th>Factor Pairs of 40</th>
<th>Factor Pairs of 28</th>
<th>Factor Pairs of 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>____ x ____</td>
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Factors of 40: __________

Factors of 28: __________

Factors of 42: __________

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More Practice: Finding Factor Pairs

Find all factor pairs for each number below using your multiples rules and strategies. Start with 1 and check each number.

<table>
<thead>
<tr>
<th>1. Factor Pairs of 21</th>
<th>2. Factor Pairs of 34</th>
<th>3. Factor Pairs of 49</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ x _____</td>
<td>_____ x _____</td>
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<tr>
<td>Factors of 21:</td>
<td>Factors of 34:</td>
<td>Factors of 49:</td>
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<tr>
<td>Factors of 48:</td>
<td>Factors of 50:</td>
<td>Factors of 56:</td>
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<tr>
<td>__ __ __ __ __ __</td>
<td>__ __ __ __ __ __</td>
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</tr>
</tbody>
</table>

Find all factor pairs for each number below using your divisibility rules. Start with 1 and check each number. Some numbers may have only one factor pair.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 1 x 22</td>
<td>1 _____</td>
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<tr>
<td>2 2 x 11</td>
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<td>10 __ __ __ __ __</td>
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<tr>
<td>Factors of 22:</td>
<td>Factors of 27:</td>
<td>Factors of 64:</td>
<td>Factors of 31:</td>
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<tr>
<td>__ __ __ __ __</td>
<td>__ __ __ __ __</td>
<td>__ __ __ __ __</td>
<td>__ __ __ __ __</td>
</tr>
</tbody>
</table>
Using Models to Find Factor Pairs
You can use tiles or draw arrays to find factor pairs.

Ex: Find the factor pairs of 18.
1 x 18
2 x 9
3 x 6
Factors of 18: 1, 2, 3, 6, 9, and 18

Use the grids below to show the factor pairs of each number below. Draw and label each array with the correct factor pair. Then, list the factors for each number.

1. Factors of 15:
2. Factors of 20:
3. Factors of 12:

Draw arrays below to show the factor pairs of each number. You can use tiles to help you. Label each array with the correct factor pair. Then, list the factors.

4. Factors of 14:
5. Factors of 21:
6. Factors of 25:
Put It All Together: Find Factors & Factor Pairs

Use divisibility rules and/or models to find factor pairs of a number.

Write yes or no for each question below.

1. Is 3 a factor of ...
   - 20? ____
   - 27? ____
   - 32? ____
   - 39? ____

2. Is 5 a factor of ...
   - 28? ____
   - 31? ____
   - 45? ____
   - 60? ____

3. Is 6 a factor of ...
   - 18? ____
   - 24? ____
   - 40? ____
   - 46? ____

Find all factor pairs for each number below using your divisibility rules.

<table>
<thead>
<tr>
<th>Number</th>
<th>Factor Pairs</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____, ____, ____</td>
</tr>
<tr>
<td>44</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____</td>
</tr>
<tr>
<td>24</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____</td>
</tr>
<tr>
<td>39</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____</td>
</tr>
<tr>
<td>36</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____</td>
</tr>
<tr>
<td>60</td>
<td>____ x ____</td>
<td>____, ____, ____, ____, ____, ____</td>
</tr>
</tbody>
</table>

10. Use the grids below to show all the factor pairs of 16.
Word Problems: Factors and Multiples

Use divisibility rules and/or models to answer questions related to factors and multiples.

1. Lydia picked some flowers. She said she picked more than 20 flowers, but less than 40 flowers. The number of flowers Lydia picked is a multiple of 3. List at least 3 numbers that could be the number of flowers Lydia picked.
   ___, ____, ____

2. Mr. Patrick has 30 students in his class working on a project. Show at least 3 different ways he could equally group his students.
   ___ groups of ___ students
   ___ groups of ___ students
   ___ groups of ___ students

3. Grey said he is thinking of a mystery number. The number is between 20 and 30, and it has exactly 3 factors. What is Grey’s mystery number?
   Grey’s Number: _____

4. Caroline has a bag of 27 Skittles. Can she share her Skittles evenly with her brother Luke by dividing the Skittles into two equal groups? ________
   Explain why or why not using your knowledge of factors and multiples.

5. Kylee picked 27 apples, and she wants to store them equally in bags. She wants to use more than 1 bag, but less than 7 bags. How many bags does Kylee need to store the apples equally in bags?
   ____ bags

6. Mrs. Vela loves coffee. This month, she drank many cups of coffee. This number is more than 50, but less than 70. It is a multiple of 4 and 7. How many cups of coffee did Mrs. Vela drink this month?
   ____ cups
Prime and Composite Numbers

A number is either prime or composite. Look at the number of factors.

<table>
<thead>
<tr>
<th>Prime Numbers</th>
<th>Composite Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 2 factors</td>
<td>At least 3 factors</td>
</tr>
</tbody>
</table>

**Examples:**
- Prime Numbers: 19 (Factors: 1, 19)
- Composite Numbers: 25 (Factors: 1, 5, 25)

To determine if a number is prime or composite, think of your divisibility rules.
- All even numbers (except 2) are composite because they can be divided by 2.
- Numbers ending in 5 (except 5) are composite because they can be divided by 5.
- If a number is odd and does not end in 5, you will need to determine if it can be divided by another odd number (3, 7, 9, 11, etc.) to see if it is composite.

Tell whether each number below is prime or composite. Use examples as a guide.

<table>
<thead>
<tr>
<th>Ex: 26: composite</th>
<th>95: composite</th>
<th>31: prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>*because it is even</td>
<td>*ends in 5</td>
<td>*odd; can only be divided by odd numbers *not divisible by 3, 5, 7, or 9</td>
</tr>
</tbody>
</table>

1. 34  ____________________________  2. 75  ____________________________
3. 17  ____________________________  4. 98  ____________________________
5. 100 ____________________________  6. 21  ____________________________
7. 49  ____________________________  8. 59  ____________________________
9. 26  ____________________________  10. 33 ____________________________
11. 73 ____________________________  12. 50  ____________________________
13. 84 ____________________________  14. 2  ____________________________
Prime and Composite Numbers: Chart

Look at the hundreds chart below. Color all the composite numbers.

- Color all multiples of 2 (except the number 2).
  - You will not need to color in multiples of 4, 6, 8, or 10 because they are also multiples of 2.
- Color all multiples of 3 (except the number 3).
  - You will not need to color in multiples of 6 or 9 because they are also multiples of 3.
- Color in multiples of 5 (except the number 5).
  - You will not need to color in multiples of 10 because they are also multiples of 5.
- List the first 14 multiples of 7.
  - __ __ __ __ __ __ __ __ __ __ __ __ __
  - Now color these multiples of 7 (except the number 7).

<p>| | | | | | | | | | |</p>
<table>
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<td>95</td>
<td>96</td>
<td>97</td>
<td>98</td>
<td>99</td>
<td>100</td>
</tr>
</tbody>
</table>

Except for one, the numbers that are not filled in are the prime numbers from 1-100.

The number one is neither prime nor composite because it has only one factor.
Factor Pairs and Prime & Composite Numbers

For each number below, list all factor pairs. Then, identify the number as prime or composite. Remember to use your divisibility rules.

<table>
<thead>
<tr>
<th>#</th>
<th>Factor Pairs</th>
<th>Prime or Composite?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

Circle the **prime number** in each set of numbers below.

7.  14 19 21 25
8.  80 81 83 87
9.  18 24 27 29
10. 94 51 67 69

Circle the **composite number** in each set of numbers below.

11. 41 43 47 49
12. 29 31 39 53

13. Joel says the number 63 is prime because it is an odd number. Is he correct? Explain why or why not.

________________________________________
________________________________________
Factors & Multiples: True or False?

Read each statement below. Determine if the statement is true or false. If the statement is false, rewrite the statement to make it true.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True or False?</th>
<th>Rewrite false statements to make them TRUE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The number 23 is a multiple of 3 because it ends in a 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The number 49 is a composite number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The first 5 multiples of 7 are 14, 21, 28, 35, and 42.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The numbers 24, 39, and 87 are all multiples of 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The number 2 is a prime number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Odd numbers have only odd factors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The number 16 has 3 factor pairs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The prime numbers between 20 and 30 are 21, 23, 27, and 29.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. All multiples of 3 are also multiples of 6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. All multiples of 10 are also multiples of 5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. The number 56 is a multiple of 7.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Choose the best answer for each question below.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Which number below is <strong>not</strong> a factor of 50?</td>
<td>A. 2  B. 4  C. 5  D. 10</td>
</tr>
<tr>
<td>2. Which number below is a multiple of 6?</td>
<td>A. 15  B. 22  C. 31  D. 36</td>
</tr>
<tr>
<td>3. Which number below is a factor of 30, but is <strong>not</strong> a multiple of 3?</td>
<td>A. 6  B. 15  C. 8  D. 10</td>
</tr>
<tr>
<td>4. Which number below is a factor of 48, but is <strong>not</strong> a multiple of 4?</td>
<td>A. 12  B. 11  C. 6  D. 8</td>
</tr>
<tr>
<td>5. Which set of numbers are all <strong>prime</strong> numbers?</td>
<td>A. 9, 11, 17, 23  B. 11, 23, 31, 47  C. 11, 23, 31, 39  D. 17, 31, 33, 39</td>
</tr>
<tr>
<td>6. Which set of numbers are all <strong>composite</strong> numbers?</td>
<td>A. 2, 8, 12, 24  B. 21, 24, 36, 49  C. 15, 18, 24, 29  D. 20, 23, 30, 33</td>
</tr>
<tr>
<td>7. Which number below is a factor of 24, but is <strong>not</strong> a multiple of 2?</td>
<td>A. 3  B. 8  C. 12  D. 6</td>
</tr>
<tr>
<td>8. Which number below is a factor of 21 and 33?</td>
<td>A. 7  B. 11  C. 3  D. 9</td>
</tr>
<tr>
<td>9. Which number below is a factor of 2 and 3, but not 5?</td>
<td>A. 36  B. 27  C. 46  D. 30</td>
</tr>
<tr>
<td>10. Which number below is a multiple of 3, 4, and 5?</td>
<td>A. 45  B. 48  C. 50  D. 60</td>
</tr>
<tr>
<td>11. Which number below has the most factors?</td>
<td>A. 30  B. 31  C. 34  D. 35</td>
</tr>
<tr>
<td>12. Which number below has exactly 5 factors?</td>
<td>A. 10  B. 12  C. 16  D. 19</td>
</tr>
</tbody>
</table>
Thank You!

Thank you for your purchase. Please let us know if you have any questions or comments (teachershelpingteachers77@gmail.com). If you get a chance, we would love to hear your feedback on this product!

😊 Thanks, Kathleen & Mande’

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Multiples

A multiple is the product of two numbers.

Example: \[3 \times 5 = 15\]

15 is a multiple of 3 and 5.

factor \times factor = multiple

To find multiples, you can skip count or multiply.

The first 5 multiples of 4...

4, 8, 12, 16, 20

The first 5 multiples of 9...

9, 18, 27, 36, 45

Write the first five multiples for the number below.

1. 5
   
   5, 10, 15, 20, 25

2. 7
   
   7, 14, 21, 28, 35

3. 12
   
   12, 24, 36, 48, 60

4. 3
   
   3, 6, 9, 12, 15

5. 2
   
   2, 4, 6, 8, 10

6. 11
   
   11, 22, 33, 44, 55

Look at each set of 4 numbers below. Determine which number these are multiples of. Then, complete the pattern with the next 2 multiples.

7. 12, 18, 24, 30, 36, 42
   
   These are multiples of 6.

8. 40, 50, 60, 70, 80
   
   These are multiples of 10.

9. 32, 40, 48, 56, 64, 72
   
   These are multiples of 8.

10. 8, 10, 12, 14, 16, 18
    
    These are multiples of 2.

4.OA.4

Identify multiples of a number by skip counting or multiplying.
Multiples of 2, 5, and 10

Is a number a multiple of 2, 5, or 10? Look at the last digit.

<table>
<thead>
<tr>
<th>Multiples of 2</th>
<th>Multiples of 5</th>
<th>Multiples of 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>End in 0, 2, 4, 6, or 8</td>
<td>End in 0 or 5</td>
<td>End in 0</td>
</tr>
<tr>
<td>Ex: 12, 428, 94, 8, 60, 32</td>
<td>Ex: 25, 90, 135, 5, 40, 70</td>
<td>Ex: 90, 20, 100, 400, 30</td>
</tr>
</tbody>
</table>

Circle the numbers that are multiples of each given number.

1. 2 2 7 11 13 16 24 28 31 45 46 52
2. 5 3 5 10 12 15 23 29 35 41 50 56
3. 10 2 5 10 18 34 40 45 55 72 75 90

Answer yes or no for each question below.

4. Is 74 a multiple of 2? yes
5. Is 63 a multiple of 5? no
6. Is 26 a multiple of 5? no
7. Is 80 a multiple of 10? yes
8. Is 39 a multiple of 2? no
9. Is 41 a multiple of 2? no
10. Is 54 a multiple of 10? no
11. Is 70 a multiple of 2? yes
12. Is 65 a multiple of 5? yes

List the first 10 multiples for each number. Circle the common multiples.

14. 2 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
15. 5 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
16. 10 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

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Multiples of 3
To determine if a number is a multiple of 3, add the digits. If the sum of the digits is a multiple of 3, the number is a multiple of 3.

Examples:
72 7 + 2 = 9  ✔ 9 is a multiple of 3, so 72 is a multiple of 3
51 5 + 1 = 6  ✔ 6 is a multiple of 3, so 51 is a multiple of 3
26 2 + 6 = 8  ❌ 8 is a NOT a multiple of 3, so 26 is NOT a multiple of 3
87 8 + 7 = 15 … If the sum is 2 digits, you can add those numbers.
   1 + 5 = 6  ✔ 6 is a multiple of 3, so 51 is a multiple of 3

Find the sum of the digits below. Is the number of a multiple of 3? Circle yes or no.

1. 36  3 + 6 = 9  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
2. 82  8 + 2 = 10  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
3. 45  4 + 5 = 9  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
4. 56  5 + 6 = 11  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
5. 79  7 + 9 = 16  ❌  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
6. 90  9 + 0 = 9  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
7. 18  1 + 8 = 9  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
8. 66  6 + 6 = 12  ✔  Multiple of 3? Yes  No
   Multiple of 3? Yes  No
9. List the first 10 multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
10. Is 54 a multiple of 3? Yes
11. Is 76 a multiple of 3? No
Put It All Together: Multiples of 2, 3, 5, and 10

Circle the numbers that are multiples of each given number.

1. 2 4 9 14 19 26 30 37 44 53 69 78
2. 3 3 9 10 17 18 24 28 31 45 49 57
3. 5 24 25 30 36 43 46 52 55 61 75 93
4. 10 5 10 13 38 45 50 60 68 75 80 100

Answer yes or no for each question below.

5. Is 37 a multiple of 2? no
6. Is 64 a multiple of 5? no
7. Is 39 a multiple of 3? yes
8. Is 75 a multiple of 10? no
9. Is 50 a multiple of 10? yes
10. Is 43 a multiple of 3? no
11. Is 85 a multiple of 2? no
12. Is 84 a multiple of 3? yes
13. Is 95 a multiple of 5? yes

List the first 5 multiples for each number.

15. 2 2, 4, 6, 8, 10
16. 3 3, 6, 9, 12, 15
17. 5 5, 10, 15, 20, 25
18. 10 10, 20, 30, 40, 50

19. Is the number below a multiple of...
   2? yes
   3? no
   5? yes
   10? yes

20. Is the number below a multiple of...
   2? no
   3? yes
   5? yes
   10? no
Multiples of 6
Six is a multiple of 2 and 3. If a number is a multiple of 2 and 3, then it is also a multiple of 6.

<table>
<thead>
<tr>
<th>Multiples of 2</th>
<th>Multiples of 3</th>
<th>Multiples of 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>End in 0, 2, 4, 6, or 8</td>
<td>The sum of the digits is a multiple of 3</td>
<td>Are multiples of 2 and 3</td>
</tr>
<tr>
<td>Ex: 12, 42, 94, 8, 60, 32</td>
<td>Ex: 63  6 + 3 = 9</td>
<td>Ex: 24  2 + 4 = 6</td>
</tr>
</tbody>
</table>

Circle the numbers that are multiples of each given number.

1. 2  6  10  12  15  18  21  24  28  30  33  36  41
2. 3  6  10  12  15  18  21  24  28  30  33  36  41
3. 6  6  10  12  15  18  21  24  28  30  33  36  41

Answer yes or no for each question below.

4. Is 26 a multiple of 2? yes  5. Is 42 a multiple of 2? yes
   multiple of 3? no  multiple of 3? yes
   multiple of 6? no  multiple of 6? yes

   multiple of 3? yes  multiple of 3? no
   multiple of 6? yes  multiple of 6? no

   multiple of 3? yes  multiple of 6? yes

10. List the first 10 multiples of 6. 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Multiples & Venn Diagrams (2, 3, & 5)

Use Venn diagrams to show common factors.

In each Venn diagram below, place all numbers. Decide if each number is a multiple of the first number or the second number. If it is a multiple of both numbers, it goes in the center. If it is not a multiple of either number, place it outside of the diagram.

1. **Multiples of 2 and 3**
   Place the following numbers: 4, 6, 11, 15, 18, 20, 23, 24, 33, 39, 41, 45, 48, 52, 54
   - Multiples of 2: 4, 20, 52
   - Multiples of 3: 6, 18, 15, 33, 39, 45
   - BOTH: 24, 48, 54
   - Numbers that are multiples of 2 and 3 are multiples of 6.

2. **Multiples of 2 and 5**
   Place the following numbers: 3, 5, 6, 10, 12, 15, 17, 25, 30, 33, 35, 36, 40, 42, 55
   - Multiples of 2: 6, 12, 36, 42
   - Multiples of 5: 5, 15, 25, 35, 55
   - BOTH: 10, 30, 40
   - Numbers that are multiples of 2 and 5 are multiples of 10.
**Put It All Together: Multiples of 2, 3, 5, 6, and 10**

Circle the numbers that are multiples of each given number.

<table>
<thead>
<tr>
<th></th>
<th>16</th>
<th>43</th>
<th>97</th>
<th>86</th>
<th>30</th>
<th>59</th>
<th>64</th>
<th>12</th>
<th>23</th>
<th>38</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Answer yes or no for each question below.

6. Is 48 a multiple of 2? **yes**
7. Is 72 a multiple of 3? **yes**
8. Is 36 a multiple of 6? **yes**
9. Is 40 a multiple of 10? **yes**
10. Is 55 a multiple of 10? **no**
11. Is 33 a multiple of 6? **no**
12. Is 75 a multiple of 5? **yes**
13. Is 27 a multiple of 2? **no**
15. Is 63 a multiple of 5? **no**

16. Harry is 30 years old. Is his age a multiple of...?

- 2? **yes**
- 3? **yes**
- 5? **yes**
- 6? **yes**
- 10? **yes**

17. Lance has some cards. This number of cards is a multiple of 2 and 5. How many cards could Lance have?

A. 14   B. 15   C. 20   D. 25

18. Bella bought new pencils. The number of pencils is a multiple of 2 and 3, but is not a multiple of 10. How many pencils could Bella have?

A. 24   B. 27   C. 30   D. 34
Multiples of 9

A multiple of 9 must be a multiple of 3. The multiple rule for 9 is similar to the multiple rule for 3. To determine if a number is a multiple of 9, add the digits. If the sum of the digits is a multiple of 9, the number is a multiple of 9.

Examples:
72  \(7 + 2 = 9\)  ✔ 9 is a multiple of 9, so 72 is a multiple of 9
45  \(4 + 5 = 9\)  ✔ 9 is a multiple of 9, so 45 is a multiple of 9
34  \(3 + 4 = 7\)  ✗ 7 is a NOT a multiple of 9, so 34 is NOT a multiple of 9
288  \(2 + 8 + 8 = 18\)... If the sum is 2 digits, you can add those numbers.
   \(1 + 8 = 9\)  ✔ 9 is a multiple of 9, so 288 is a multiple of 9

Find the sum of the digits below. Is the number a multiple of 9? Circle yes or no.

1. 36  \(3 + 6 = 9\)
   Multiple of 9?  ✔  Yes  No

2. 56  \(5 + 6 = 11\)
   Multiple of 9?  ✔  Yes  No

3. 78  \(7 + 8 = 15\)
   Multiple of 9?  ✔  Yes  No

4. 99  \(9 + 9 = 18\)
   Multiple of 9?  ✔  Yes  No

5. 43  \(4 + 3 = 7\)
   Multiple of 9?  ✔  Yes  No

6. 27  \(2 + 7 = 9\)
   Multiple of 9?  ✔  Yes  No

7. 144  \(1 + 4 + 4 = 9\)
   Multiple of 9?  ✔  Yes  No

8. 316  \(3 + 1 + 6 = 10\)
   Multiple of 9?  ✔  Yes  No

   \(9, 18, 27, 36, 45, 54, 63, 72, 81, 90\)

10. Is 83 a multiple of 9?  ✗  No

11. Is 54 a multiple of 9?  ✔  Yes
Multiples of 4 and 8
To determine if a number is a multiple of 4 or 8, first determine if the number is an even number. If it is odd, it cannot be a multiple of 4 or 8. Then, you will need to skip count or think of your multiplication facts to determine if it is a multiple of 4 or 8.

Examples:

35  
35 is not even, so it cannot be a multiple of either 4 or 8.

14  
14 is even, so it might be a multiple of 4 or 8.
I know 4 x 3 = 12 and 4 x 4 = 16, so 14 is NOT a multiple of 4.
If a number is not a multiple of 4, it cannot be a multiple of 8.

20  
20 is even, so it might be a multiple of 4 or 8.
I know 4 x 5 = 20, so 20 is a multiple of 4.
I know 8 x 2 = 16 and 8 x 3 = 24, so 20 is NOT a multiple of 8.

Answer yes or no for each question below.

1. Is 25 a…
   - multiple of 2? no
   - multiple of 4? no
   - multiple of 8? no

2. Is 18 a…
   - multiple of 2? yes
   - multiple of 4? no
   - multiple of 8? no

3. Is 44 a…
   - multiple of 2? yes
   - multiple of 4? yes
   - multiple of 8? no

4. Is 36 a…
   - multiple of 2? yes
   - multiple of 4? yes
   - multiple of 8? no

5. Is 32 a…
   - multiple of 2? yes
   - multiple of 4? yes
   - multiple of 8? yes

6. Is 63 a…
   - multiple of 2? no
   - multiple of 4? no
   - multiple of 8? no

List the first 10 multiples for each number. Circle the common multiples.

7. 4  
   \[4, 8, 12, 16, 20, 24, 28, 32, 36, 40\]

8. 8  
   \[8, 16, 24, 32, 40, 48, 56, 64, 72, 80\]
Multiples & Venn Diagrams (3, 4, & 5)

Use Venn diagrams to show common factors.

In each Venn diagram below, place all numbers. Decide if each number is a multiple of the first number or the second number. If it is a multiple of both numbers, it goes in the center. If it is not a multiple of either number, place it outside of the diagram.

1. **Multiples of 3 and 4**
   Place the following numbers: 3, 6, 8, 10, 12, 15, 16, 18, 21, 22, 24, 28, 33, 36, 42
   - Multiples of 3
   - Multiples of 4
   - BOTH
   - Numbers that are multiples of 3 and 4 are multiples of 12.

2. **Multiples of 4 and 5**
   Place the following numbers: 4, 5, 8, 10, 12, 15, 18, 20, 24, 25, 29, 30, 36, 40, 47
   - Multiples of 4
   - Multiples of 5
   - BOTH
   - Numbers that are multiples of 4 and 5 are multiples of 20.
Multiples of 7 and 11

Is a number a multiple of 7 or 11?

<table>
<thead>
<tr>
<th>Multiples of 7</th>
<th>Multiples of 11</th>
</tr>
</thead>
</table>
| There is no short cut to find the multiples of 7. ☹ You must skip count or think of your multiplication facts x 7. | For 2 digit numbers, the multiples of 11 have double the same digit. *
| Examples: | * This is not true of 3 digit numbers. 222 is not a multiple of 11. |
| 35 is a multiple of 7 because 7 x 5 = 35 | Examples: |
| 43 is NOT a multiple of 7 because 7 x 6 = 42, so 43 would not be a multiple of 7. | 44 is a multiple of 11 because 4 x 11 = 44 |
| 77 is a multiple of 11 because 7 x 11 = 77 |

Circle the numbers that are multiples of each given number.

1. 7 | 7 | 12 | □ | 23 | 28 | 38 | 48 | 49 | 59 | 61 | □ |
2. □ | 13 | □ | 23 | □ | 33 | 39 | □ | 55 | 56 | 67 | 71 | □ | 88 | 98

List the first 10 multiples for each number.

3. 7 | 7, 14, 21, 28, 35, 42, 49, 56, 63, 70
4. □ | 11, 22, 33, 44, 55, 66, 77, 88, 99, 110

Answer yes or no for each question below.

7. Is 37 a multiple of 7? no   8. Is 75 a multiple of 11? no
# Multiples Rules & Strategies Reference Chart

Use this chart to fill in the multiple rules/strategies as you learn them. These rules are also referred to as “Divisibility Rules.” This means when you divide a number by this number, you will not have a remainder.

<table>
<thead>
<tr>
<th>Number</th>
<th>Rule or Strategy</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>*Must be even&lt;br&gt;*Ends in 0, 2, 4, 6, or 8</td>
<td>12, 64, 38, 340</td>
</tr>
<tr>
<td>3</td>
<td>*Sum of the digits must be a multiple of 3.</td>
<td>75: 7 + 5 = 12&lt;br&gt;96: 9 + 6 = 15</td>
</tr>
<tr>
<td>4</td>
<td>*Even numbers</td>
<td>24, 32, 44</td>
</tr>
<tr>
<td>5</td>
<td>*Ends in a 5 or 0</td>
<td>15, 60, 35, 340</td>
</tr>
<tr>
<td>6</td>
<td>*Even numbers&lt;br&gt;*Must be a multiple of 2 and 3</td>
<td>12, 24, 30</td>
</tr>
<tr>
<td>7</td>
<td>*No short cut — just skip count</td>
<td>7, 14, 21, 28, 35</td>
</tr>
<tr>
<td>8</td>
<td>*Even numbers&lt;br&gt;*Must also be a multiple of 4</td>
<td>40, 32, 64</td>
</tr>
<tr>
<td>9</td>
<td>*Sum of the digits must be a multiple of 9.&lt;br&gt;*Must also be a multiple of 3</td>
<td>72: 7 + 2 = 9&lt;br&gt;837: 8 + 3 + 7 = 18</td>
</tr>
<tr>
<td>10</td>
<td>*Ends in a 0</td>
<td>50, 120, 30</td>
</tr>
<tr>
<td>11</td>
<td>*In a 2 digit number, the digits are the same number.</td>
<td>22, 44, 77</td>
</tr>
</tbody>
</table>
### Multiples: Multiple Choice

Use your divisibility rules to answer multiple choice questions.

**Example:**
Karen has some stickers. The number of stickers she has is a multiple of 2 and 3, but the number is not a multiple of 5. How many stickers could Karen have?

- A. 44 stickers
- B. 48 stickers
- C. 60 stickers
- D. 63 stickers

**Step 1:** Eliminate choice D (63) because it is not even. (It is not a multiple of 2)

**Step 2:** Eliminate choice C (60) because it ends in a 5. (It is a multiple of 5)

**Step 3:** Add the digits of the last 2 choices to see which is a multiple of 3.

- $4 + 4 = 8$
- $4 + 8 = 12$

$12$ is a multiple of 3, so 48 is a multiple of 3

Select the best answer choice for each question below. Use your multiples rules and strategies to eliminate answer choices.

1. In Mrs. Johnson’s class, the students took a survey of their favorite subject. The number of students who voted for math is a multiple of 2 and 3. How many students could have voted for math?

   - A. 15 students
   - B. 16 students
   - C. 18 students
   - D. 19 students

   **Answer:** C. 18 students

2. Emerson invited some of her friends to spend the night for her birthday party. The number of friends she invited is a multiple of 4. How many friends could Emerson have invited to her birthday party?

   - A. 10 friends
   - B. 12 friends
   - C. 13 friends
   - D. 14 friends

   **Answer:** B. 12 friends

3. A plant is full of cute little ladybugs. The number of ladybugs on the leaf is a multiple of 3 and 5, but not a multiple of 2. How many ladybugs are on the plant?

   - A. 45 ladybugs
   - B. 48 ladybugs
   - C. 50 ladybugs
   - D. 55 ladybugs

   **Answer:** A. 45 ladybugs

4. On a beautiful sunny day, there are many sailboats on the lake. The number of sailboats is a multiple of 2 and 7. How many sailboats are on the lake?

   - A. 21 boats
   - B. 28 boats
   - C. 35 boats
   - D. 38 boats

   **Answer:** B. 28 boats

5. Mrs. Stevenson has 24 students. She wants to use her knowledge of multiples to put her students into equal groups. Which is not a possible number of groups Mrs. Stevenson can have if she wants her 24 students in equal groups?

   - Yes: $2 + 4 = 6$, a multiple of 3
   - Yes: even, $4 \times 6 = 24$
   - No: 24 doesn’t end in a 5 or 0
   - Yes: even and a multiple of 3

   - A. 3 groups
   - B. 4 groups
   - C. 5 groups
   - D. 6 groups

   **Answer:** C. 5 groups
# Finding Factor Pairs

A factor is a number that can be multiple by another number to get a product/multiple. The two factors multiplied are called factor pairs.

<table>
<thead>
<tr>
<th>Example: $3 \times 4 = 12$</th>
<th>3 and 4 are both factors of 12.</th>
</tr>
</thead>
<tbody>
<tr>
<td>factor x factor = multiple</td>
<td>Together, they are factor pairs.</td>
</tr>
</tbody>
</table>

To find factor pairs of a number, think of which two numbers can be multiplied together to get a given number. Use the divisibility rules you have learned.

Start with the number 1 and check the rule for each number.

### Example 1 - Find the factors of 15.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 x 15</td>
<td>The first factor pair of every number is 1 x itself.</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>15 is odd. You can rule out all even factors, because odd numbers only have odd factors.</td>
</tr>
<tr>
<td>3</td>
<td>3 x 5</td>
<td>3 is a factor of 15 because 1 + 5 = 6. 6 is a multiple of 3.</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>15 is odd, so it only has odd factors. 4 is even.</td>
</tr>
<tr>
<td>5</td>
<td>5 x 3</td>
<td>15 ends in a 5, so it is a multiple of 5.</td>
</tr>
</tbody>
</table>

You can stop here because you have now repeated a factor pair: 3 x 5 and 5 x 3. There are no more factor pairs to find.

The factors of 15 are 1, 3, 5, and 15.

### Example 2 - Find the factors of 24.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 x 24</td>
<td>The first factor pair of every number is 1 x itself.</td>
</tr>
<tr>
<td>2</td>
<td>2 x 12</td>
<td>24 is even. All even numbers have 2 as a factor.</td>
</tr>
<tr>
<td>3</td>
<td>3 x 8</td>
<td>3 is a factor of 24 because 2 + 4 = 6. 6 is a multiple of 3.</td>
</tr>
<tr>
<td>4</td>
<td>4 x 6</td>
<td>Look at the factor pair for 2. 24 = 2 x 12. If you can divide the factor pair for 2 in half, then the number also has 4 as a factor. Half of 12 is 6, so 4 x 6 = 24.</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>24 does not end in a 5 or 0.</td>
</tr>
<tr>
<td>6</td>
<td>6 x 4</td>
<td>24 has 2 and 3 as factors, so 6 will also be a factor.</td>
</tr>
</tbody>
</table>

You can stop here because you have now repeated a factor pair: 4 x 6 and 6 x 4. There are no more factor pairs to find.

The factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24.
Finding Factor Pairs

To find factor pairs of a number, think of which two numbers can be multiplied together to get a given number. Use your divisibility rules. Start with the number 1 and check the rule for each number.

Example 1 - Find the factors of 30.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 x 30</td>
<td>The first factor pair of every number is 1 x itself.</td>
</tr>
<tr>
<td>2</td>
<td>2 x 15</td>
<td>30 is even. All even numbers have 2 as a factor.</td>
</tr>
<tr>
<td>3</td>
<td>3 x 10</td>
<td>3 is a factor of 30 because 3 + 0 = 3. 3 is a multiple of 3.</td>
</tr>
<tr>
<td>4</td>
<td>5 x 6</td>
<td>30 = 2 x 15; 15 is odd, so it cannot be split in half. To have 4 as a factor, you must be able to split the factor pair of 2.</td>
</tr>
<tr>
<td>5</td>
<td>5 x 6</td>
<td>30 ends in a 0, so it is a multiple of 5.</td>
</tr>
<tr>
<td>6</td>
<td>6 x 5</td>
<td>2 and 3 are both factors of 30, so 6 is also a factor.</td>
</tr>
</tbody>
</table>

You can stop here because you have now repeated a factor pair: 5 x 6 and 6 x 5. There are no more factor pairs to find.

The factors of 30 are 1, 2, 3, 5, 6, 10, 15, and 30.

Find all factor pairs for each number below using your divisibility rules.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 x 20</td>
<td>1 x 32</td>
<td>1 x 45</td>
</tr>
<tr>
<td>2 x 10</td>
<td>2 x 16</td>
<td>3 x 15</td>
</tr>
<tr>
<td>4 x 5</td>
<td>4 x 8</td>
<td>5 x 9</td>
</tr>
</tbody>
</table>

Factors of 20: 1, 2, 4, 5, 10, 20

Factors of 32: 1, 2, 4, 8, 16, 32

Factors of 45: 1, 3, 5, 9, 15, 45

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 40</td>
<td>1 x 28</td>
<td>1 x 42</td>
</tr>
<tr>
<td>2 x 20</td>
<td>2 x 14</td>
<td>2 x 21</td>
</tr>
<tr>
<td>4 x 10</td>
<td>4 x 7</td>
<td>3 x 14</td>
</tr>
<tr>
<td>5 x 8</td>
<td></td>
<td>6 x 7</td>
</tr>
</tbody>
</table>

Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40

Factors of 28: 1, 2, 4, 7, 14, 28

Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42

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More Practice: Finding Factor Pairs

Find all factor pairs for each number below using your multiples rules and strategies. Start with 1 and check each number.

<table>
<thead>
<tr>
<th>1. Factor Pairs of 21</th>
<th>2. Factor Pairs of 34</th>
<th>3. Factor Pairs of 49</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{1} \times 21 ) ( \frac{3}{3} \times 7 )</td>
<td>( \frac{1}{1} \times 34 ) ( \frac{2}{2} \times 17 )</td>
<td>( \frac{1}{1} \times 49 ) ( \frac{7}{7} \times 7 )</td>
</tr>
<tr>
<td>Factors of 21: 1, 3, 7, 21</td>
<td>Factors of 34: 1, 2, 17, 34</td>
<td>Factors of 49: 1, 7, 49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{1} \times 48 ) ( \frac{2}{2} \times 24 ) ( \frac{3}{3} \times 16 ) ( \frac{4}{4} \times 12 ) ( \frac{6}{6} \times 8 )</td>
<td>( \frac{1}{1} \times 50 ) ( \frac{2}{2} \times 25 ) ( \frac{5}{5} \times 10 )</td>
<td>( \frac{1}{1} \times 56 ) ( \frac{2}{2} \times 28 ) ( \frac{4}{4} \times 14 ) ( \frac{7}{7} \times 8 )</td>
</tr>
<tr>
<td>Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48</td>
<td>Factors of 50: 1, 2, 5, 10, 25, 50</td>
<td>Factors of 56: 1, 2, 4, 7, 8, 14, 28, 56</td>
</tr>
</tbody>
</table>

Find all factor pairs for each number below using your divisibility rules. Start with 1 and check each number. Some numbers may have only one factor pair.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ( 1 \times 22 )</td>
<td>1 ( 1 \times 27 )</td>
<td>1 ( 1 \times 64 )</td>
<td>1 ( 1 \times 31 )</td>
</tr>
<tr>
<td>2 ( 2 \times 11 )</td>
<td>( - )</td>
<td>2 ( 2 \times 32 )</td>
<td>2 ( - )</td>
</tr>
<tr>
<td>3 ( - )</td>
<td>3 ( 3 \times 9 )</td>
<td>3 ( - )</td>
<td>3 ( - )</td>
</tr>
<tr>
<td>4 ( - )</td>
<td>( - )</td>
<td>4 ( 4 \times 16 )</td>
<td>4 ( - )</td>
</tr>
<tr>
<td>5 ( - )</td>
<td>( - )</td>
<td>5 ( - )</td>
<td>5 ( - )</td>
</tr>
<tr>
<td>6 ( - )</td>
<td>( - )</td>
<td>6 ( - )</td>
<td>6 ( - )</td>
</tr>
<tr>
<td>7 ( - )</td>
<td>( - )</td>
<td>7 ( - )</td>
<td>7 ( - )</td>
</tr>
<tr>
<td>8 ( - )</td>
<td>( - )</td>
<td>8 ( 8 \times 8 )</td>
<td>8 ( - )</td>
</tr>
<tr>
<td>9 ( - )</td>
<td>9 ( 9 \times 3 )</td>
<td>9 ( - )</td>
<td>9 ( - )</td>
</tr>
<tr>
<td>10 ( - )</td>
<td>( - )</td>
<td>10 ( - )</td>
<td>10 ( - )</td>
</tr>
<tr>
<td>Factors of 22: 1, 2, 11, 22</td>
<td>Factors of 27: 1, 3, 9, 27</td>
<td>Factors of 64: 1, 2, 4, 8, 16, 32, 64</td>
<td>Factors of 31: 1, 31</td>
</tr>
</tbody>
</table>
Using Models to Find Factor Pairs

You can use tiles or draw arrays to find factor pairs.

Ex: Find the factor pairs of 18.

1 x 18
2 x 9
3 x 6

Factors of 18: 1, 2, 3, 6, 9, and 18

Use the grids below to show the factor pairs of each number below. Draw and label each array with the correct factor pair. Then, list the factors for each number.

1. Factors of 15:
   1, 3, 5, 15
   1 x 15
   3 x 5

2. Factors of 20:
   1, 2, 4, 5, 10, 20
   1 x 20
   2 x 10
   4 x 5

3. Factors of 12:
   1, 2, 3, 4, 6, 12
   1 x 12
   2 x 6
   3 x 4

Draw arrays below to show the factor pairs of each number. You can use tiles to help you. Label each array with the correct factor pair. Then, list the factors.

4. Factors of 14:
   1, 2, 7, 14
   1 x 14
   2 x 7

5. Factors of 21:
   1, 3, 7, 21
   1 x 21
   3 x 7
   4 x 5
   5 x 5

6. Factors of 25:
   1, 5, 25
   1 x 25
Put It All Together: Find Factors & Factor Pairs
Use divisibility rules and/or models to find factor pairs of a number.

Write yes or no for each question below.

1. Is 3 a factor of…
   - 20? no
   - 27? yes
   - 32? no
   - 39? yes

2. Is 5 a factor of…
   - 28? no
   - 31? no
   - 45? yes
   - 60? yes

3. Is 6 a factor of…
   - 18? yes
   - 24? yes
   - 40? no
   - 46? no

Find all factor pairs for each number below using your divisibility rules.

4. Factor Pairs of 35
   - 1 x 35
   - 5 x 7

   Factors of 35: 1, 5, 7, 35

5. Factor Pairs of 44
   - 1 x 44
   - 2 x 22
   - 4 x 11

   Factors of 50: 1, 2, 4, 11, 22, 44

6. Factor Pairs of 24
   - 1 x 24
   - 2 x 12
   - 3 x 8
   - 4 x 6

   Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

7. Factor Pairs of 39
   - 1 x 39
   - 3 x 13

   Factors of 39: 1, 3, 13, 39

8. Factor Pairs of 36
   - 1 x 36
   - 2 x 18
   - 3 x 12
   - 4 x 9
   - 6 x 6

   Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

9. Factor Pairs of 60
   - 1 x 60
   - 2 x 30
   - 3 x 20
   - 4 x 15
   - 5 x 12
   - 6 x 10

   Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

10. Use the grids below to show all the factor pairs of 16.

   Factor Pairs of 16:
   - 1 x 16
   - 2 x 8
   - 4 x 4

   Factors of 16: 1, 2, 4, 8, 16

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Word Problems: Factors and Multiples

Use divisibility rules and/or models to answer questions related to factors and multiples.

1. Lydia picked some flowers. She said she picked more than 20 flowers, but less than 40 flowers. The number of flowers Lydia picked is a multiple of 3. List at least 3 numbers that could be the number of flowers Lydia picked.
   
   **Example answers:** 21, 24, 27, 30, 33, 36, 39

2. Mr. Patrick has 30 students in his class working on a project. Show at least 3 different ways he could equally group his students.

   Example answers:
   - 15 groups of 2 students
   - 10 groups of 3 students
   - 6 groups of 5 students

3. Grey said he is thinking of a mystery number. The number is between 20 and 30, and it has exactly 3 factors. What is Grey’s mystery number?

   Grey’s Number: 25
   Factors: 1, 5, 25

4. Caroline has a bag of 27 Skittles. Can she share her Skittles evenly with her brother Luke by dividing the Skittles into two equal groups? **No**

   Explain why or why not using your knowledge of factors and multiples. 27 is not a multiple of 2 because it is odd (ends in a 7); Multiples of 2 must end in 0, 2, 4, 6, or 8.

5. Kylee picked 27 apples, and she wants to store them equally in bags. She wants to use more than 1 bag, but less than 7 bags. How many bags does Kylee need to store the apples equally in bags?

   3 bags because $3 \times 9 = 27$

6. Mrs. Vela loves coffee. This month, she drank many cups of coffee. This number is more than 50, but less than 70. It is a multiple of 4 and 7. How many cups of coffee did Mrs. Vela drink this month?

   56 cups
   
   $7 \times 8 = 56$ and $4 \times 14 = 56$
Prime and Composite Numbers
A number is either prime or composite. Look at the number of factors.

<table>
<thead>
<tr>
<th>Prime Numbers</th>
<th>Composite Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 2 factors</td>
<td>At least 3 factors</td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td><strong>Examples:</strong></td>
</tr>
<tr>
<td>19 (Factors: 1, 19)</td>
<td>25 (Factors: 1, 5, 25)</td>
</tr>
<tr>
<td>37 (Factors: 1, 37)</td>
<td>33 (Factors: 1, 3, 11, 33)</td>
</tr>
</tbody>
</table>

To determine if a number is prime or composite, think of your divisibility rules.
- All even numbers (except 2) are composite because they can be divided by 2.
- Numbers ending in 5 (except 5) are composite because they can be divided by 5.
- If a number is odd and does not end in 5, you will need to determine if it can be divided by another odd number (3, 7, 9, 11, etc.) to see if it is composite.

Tell whether each number below is prime or composite. Use examples as a guide.

Ex: **26:** composite
   *because it is even*

**95:** composite
*ends in 5*

**31:** prime
*odd; can only be divided by odd numbers
*not divisible by 3, 5, 7, or 9*

1. 34 composite
2. 75 composite
3. 17 prime
4. 98 composite
5. 100 composite
6. 21 composite
7. 49 composite
8. 59 prime
9. 26 composite
10. 33 composite
11. 73 prime
12. 50 composite
13. 84 composite
14. 2 prime
Prime and Composite Numbers: Chart

Look at the hundreds chart below. Color all the composite numbers.

- Color all multiples of 2 (except the number 2).
  - You will not need to color in multiples of 4, 6, 8, or 10 because they are also multiples of 2.
- Color all multiples of 3 (except the number 3).
  - You will not need to color in multiples of 6 or 9 because they are also multiples of 3.
- Color in multiples of 5 (except the number 5).
  - You will not need to color in multiples of 10 because they are also multiples of 5.
- List the first 14 multiples of 7.
  - 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98
  - Now color these multiples of 7 (except the number 7).

Except for one, the numbers that are not filled in are the prime numbers from 1-100. The number one is neither prime nor composite because it has only one factor.

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Factor Pairs and Prime & Composite Numbers

For each number below, list all factor pairs. Then, identify the number as prime or composite. Remember to use your divisibility rules.

<table>
<thead>
<tr>
<th>#</th>
<th>Factor Pairs</th>
<th>Prime or Composite?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22</td>
<td>1 x 22, 2 x 11</td>
</tr>
<tr>
<td>2.</td>
<td>17</td>
<td>1 x 17</td>
</tr>
<tr>
<td>3.</td>
<td>38</td>
<td>1 x 38, 2 x 19</td>
</tr>
<tr>
<td>4.</td>
<td>49</td>
<td>1 x 49, 7 x 7</td>
</tr>
<tr>
<td>5.</td>
<td>64</td>
<td>1 x 64, 2 x 32, 4 x 16, 8 x 8</td>
</tr>
<tr>
<td>6.</td>
<td>41</td>
<td>1 x 41</td>
</tr>
</tbody>
</table>

Circle the prime number in each set of numbers below.

7. 14 19 21 25
   8. 80 81 83 87

9. 18 24 27 29
   10. 94 51 67 69

Circle the composite number in each set of numbers below.

11. 41 43 47 49 7x7 = 49
    12. 29 31 39 53 3x13 = 39

13. Joel says the number 63 is prime because it is an odd number. Is he correct? Explain why or why not.

   Odd numbers are not always prime. 63 is a multiple of 3: 6 + 3 = 9; 3 x 21 = 63. Also, 7 x 9 = 63.

   So, Joel is incorrect. 63 is a composite numbers because it has at least 3 factors. (It has 6).
Factors & Multiples: True or False?

Read each statement below. Determine if the statement is true or false. If the statement is false, rewrite the statement to make it true.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True or False?</th>
<th>Rewrite false statements to make them TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The number 23 is a multiple of 3 because it ends in a 3.</td>
<td>False</td>
<td>The number 23 is not a multiple of 3 because $2 + 3 = 5$. 5 is not a multiple of 3.</td>
</tr>
<tr>
<td>2. The number 49 is a composite number.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>3. The first 5 multiples of 7 are 14, 21, 28, 35, and 42.</td>
<td>False</td>
<td>The first 5 multiples of 7 are 7, 14, 21, 28, and 35. 7 is the first multiple of 7.</td>
</tr>
<tr>
<td>4. The numbers 24, 39, and 87 are all multiples of 3.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>5. The number 2 is a prime number.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>6. Odd numbers have only odd factors.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>7. The number 16 has 3 factor pairs.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>8. The prime numbers between 20 and 30 are 21, 23, 27, and 29.</td>
<td>False</td>
<td>The prime numbers between 20 and 30 are 23 and 29.</td>
</tr>
<tr>
<td>9. All multiples of 3 are also multiples of 6.</td>
<td>False</td>
<td>All multiples of 6 are also multiples of 3.</td>
</tr>
<tr>
<td>10. All multiples of 10 are also multiples of 5.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>11. The number 56 is a multiple of 7.</td>
<td>True</td>
<td></td>
</tr>
</tbody>
</table>
**Multiple Choice: Factors and Multiples**

Choose the best answer for each question below.

1. Which number below is **not** a factor of 50?
   - A. 2
   - B. 4
   - C. 5
   - D. 10
   - 2 x 25
   - 5 x 10
   - 10 x 5

2. Which number below is a multiple of 6?
   - A. 15
   - B. 22
   - C. 31
   - D. 36
   - Odd
   - not multiple of 3
   - Odd
   - 6 x 6 = 36

3. Which number below is a factor of 30, but is **not** a multiple of 3?
   - A. 6
   - B. 15
   - C. 8
   - D. 10
   - Mult. of 3
   - Mult. of 3
   - Not factor of 30
   - 3 x 10
   - not mult. of 3

4. Which number below is a factor of 48, but is **not** a multiple of 4?
   - A. 12
   - B. 11
   - C. 6
   - D. 8
   - Mult. of 4
   - Not factor of 48
   - 6 x 8
   - Mult. of 4

5. Which set of numbers are all prime numbers?
   - A. 9, 11, 17, 23
   - B. 11, 23, 31, 47
   - C. 11, 23, 31, 39
   - D. 17, 31, 33, 39

6. Which set of numbers are all composite numbers?
   - A. 2, 8, 12, 24
   - B. 21, 24, 36, 49
   - C. 15, 18, 24, 29
   - D. 20, 23, 30, 33

7. Which number below is a factor of 24, but is **not** a multiple of 2?
   - A. 3
   - B. 8
   - C. 12
   - D. 6
   - 3 x 8
   - Mult. of 2
   - Mult. of 2
   - Mult. of 2
   - not mult. of 2

8. Which number below is a factor of 21 and 33?
   - A. 7
   - B. 11
   - C. 3
   - D. 9
   - not 33
   - not 21
   - 3 x 7 = 21
   - 3 x 11 = 33
   - neither

9. Which number below is a factor of 2 and 3, but not 5?
   - A. 36
   - B. 27
   - C. 46
   - D. 30
   - 2 x 18 = 36
   - not mult of 2
   - not mult
   - not mult of 3
   - 3 x 12 = 36

10. Which number below is a multiple of 3, 4, and 5?
    - A. 45
    - B. 48
    - C. 50
    - D. 60
    - not 4
    - not 5
    - not 3
    - 3 x 20

11. Which number below has the most factors?
    - A. 30
    - B. 31
    - C. 34
    - D. 35
    - 8
    - 2
    - 4
    - 4

12. Which number below has exactly 5 factors?
    - A. 10
    - B. 12
    - C. 16
    - D. 19
    - 4 factors
    - 6 factors
    - 1, 2, 4, 8, 16
    - 2 factors