

# 4th Grade CCSS Math Practice

# 4.OA.4

# Factors & Multiples

Practice Sheet 40A.4 Use divisibility rules to find factor pairs

**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.

Multiples of 2	Multiples of 3	Are they multiples of 6?
End in 0, 2, 4, 6, or 8	The sum of the digits is a multiple of 3	Are they multiples of 6?
Ex: 12, 18, 24, 30, 36, 42	Ex: 63, 6+3=9	

Circle the numbers that are multiples of each given number.

Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

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.
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.

10. List the first 10 multiples of 6.

11. Is 55 a multiple of 6? 12. Is 72 a multiple of 6?

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**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 in the first number or the second number. If it is a multiple of both the first number or the second number, place it outside the center. If it is not a multiple of either number, place it outside.

1. Multiples of 2 and 3  
Place the following numbers: 4, 6, 8, 15, 18, 20, 23, 24, 33, 36

Multiples of 2	BOTH	Multiples of 3

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, 35

Multiples of 2	BOTH	Multiples of 5

Numbers that are multiples of 2 and 5 are multiples of 10.

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**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 this number is not a multiple of 5. How many stickers could Karen have?

A. 44 stickers B. 45 stickers  
C. 60 stickers D. 63 stickers

Select the best answer choice for each question below. Use your knowledge 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 friends to her birthday. The number of friends she invited is a multiple of 3 and 5, but not a multiple of 2. How many friends could have been invited to her birthday?

A. 15 friends B. 24 friends  
C. 30 friends D. 45 friends

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

A. 15 ladybugs B. 18 ladybugs  
C. 20 ladybugs D. 25 ladybugs

4. On a beautiful sunny day, a number of students are on the playground. The number of students is a multiple of 2 and 5, but not a multiple of 3. How many students are on the playground?

A. 21 students B. 25 students  
C. 30 students D. 35 students

5. Mrs. Stevenson has 24 students. She wants to use her knowledge of divisibility rules to divide the students into equal groups. Which is not a possible number of groups if she wants her 24 students in equal groups?

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

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**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.

1	1 x 30	The first factor pair of every number is 1 x itself.
2	2 x 15	30 is even. All even numbers have 2 as a factor.
3	3 x 10	30 is a factor of 30 because 3 x 10 = 30. 3 is a multiple of 3.
4	-	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.
5	5 x 6	30 ends in a 0, so 5 is a multiple of 5.
6	6 x 5	2 and 3 are both factors of 30, so 6 is also a factor.

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.

1. Factor Pairs of 20	2. Factor Pairs of 32	3. Factor Pairs of 45
x	x	x
x	x	x
x	x	x
Factors of 20:	Factors of 32:	Factors of 45:
4. Factor Pairs of 40	5. Factor Pairs of 28	6. Factor Pairs of 42
x	x	x
x	x	x
x	x	x
Factors of 40:	Factors of 28:	Factors of 42:

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By: Kathleen & Mandie

24  
pages  
in all

## 4<sup>th</sup> Grade CC&S Math Practice Packet

# 4.OA.4

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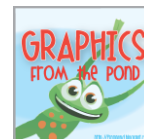
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Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of a number by  
skip counting or  
multiplying

### 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

\_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

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 \_\_\_\_.

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 2, 5, and 10

### Multiples of 2, 5, and 10

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

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

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? \_\_\_\_\_
5. Is 63 a multiple of 5? \_\_\_\_\_
6. Is 26 a multiple of 5? \_\_\_\_\_
7. Is 80 a multiple of 10? \_\_\_\_\_
8. Is 39 a multiple of 2? \_\_\_\_\_
9. Is 41 a multiple of 2? \_\_\_\_\_
10. Is 54 a multiple of 10? \_\_\_\_\_
11. Is 70 a multiple of 2? \_\_\_\_\_
12. Is 65 a multiple of 5? \_\_\_\_\_
13. Is 10 a multiple of 10? \_\_\_\_\_

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

14. **2**      \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
15. **5**      \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
16. **10**     \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 3

### 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 87 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     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

2. 82     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

3. 45     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

4. 56     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

5. 79     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

6. 90     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

7. 18     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 3? Yes No

8. 66     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

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? \_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 2, 3, 5, and 10

### 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? \_\_\_\_\_
6. Is 64 a multiple of 5? \_\_\_\_\_
7. Is 39 a multiple of 3? \_\_\_\_\_
8. Is 75 a multiple of 10? \_\_\_\_\_
9. Is 50 a multiple of 10? \_\_\_\_\_
10. Is 43 a multiple of 3? \_\_\_\_\_
11. Is 85 a multiple of 2? \_\_\_\_\_
12. Is 84 a multiple of 3? \_\_\_\_\_
13. Is 95 a multiple of 5? \_\_\_\_\_
14. Is 30 a multiple of 2? \_\_\_\_\_

List the first 5 multiples for each number.

15. **2** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
16. **3** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
17. **5** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
18. **10** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

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

- 2? \_\_\_\_\_
- 3? \_\_\_\_\_
- 5? \_\_\_\_\_
- 10? \_\_\_\_\_

**20**

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

- 2? \_\_\_\_\_
- 3? \_\_\_\_\_
- 5? \_\_\_\_\_
- 10? \_\_\_\_\_

**45**





Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify common multiples using a Venn diagram

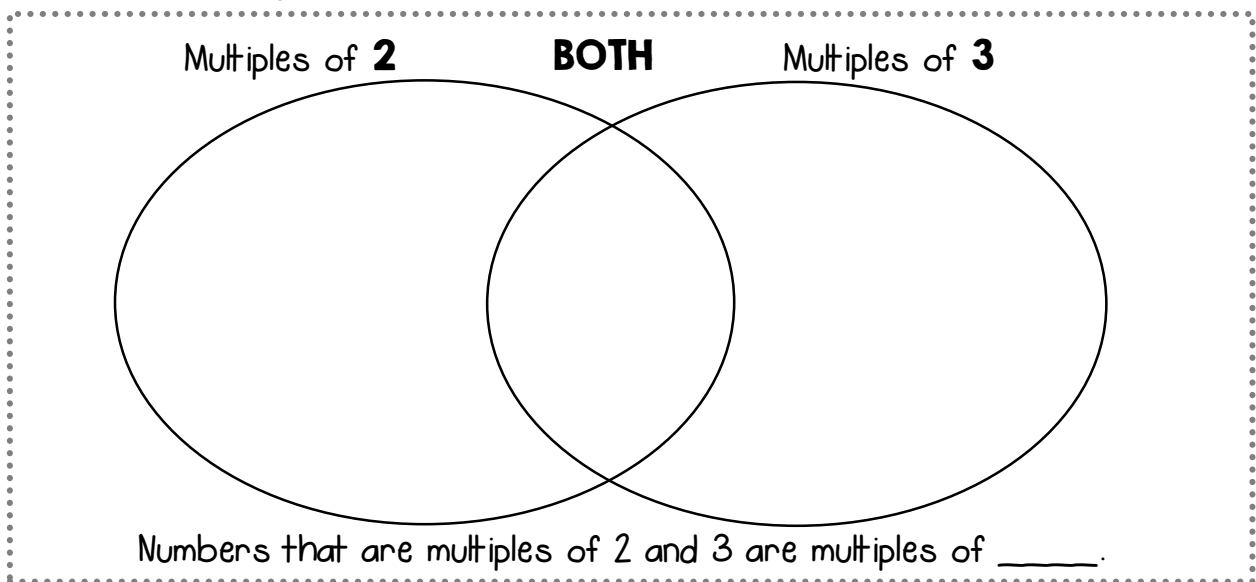
### Multiples & Venn Diagrams (2, 3, & 5)

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.

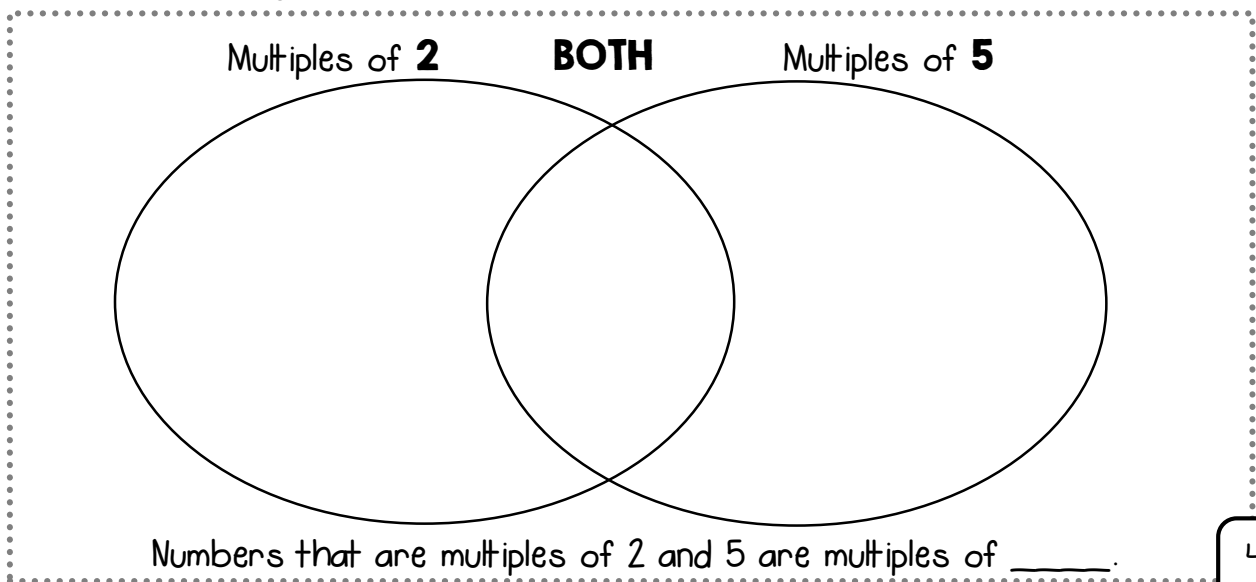
1. Multiples of **2** and **3**

Place the following numbers: 4, 6, 11, 15, 18, 20, 23, 24, 33, 39, 41, 45, 48, 52, 54



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





Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 2, 3, 5, 6, and  
10

### Put It All Together: Multiples of 2, 3, 5, 6, and 10

Circle the numbers that are multiples of each given number.

- |    |           |    |    |    |    |    |    |    |    |     |    |    |
|----|-----------|----|----|----|----|----|----|----|----|-----|----|----|
| 1. | <b>2</b>  | 16 | 43 | 97 | 86 | 30 | 59 | 64 | 12 | 23  | 38 | 55 |
| 2. | <b>3</b>  | 15 | 96 | 48 | 19 | 25 | 33 | 61 | 70 | 72  | 58 | 63 |
| 3. | <b>5</b>  | 42 | 35 | 60 | 47 | 21 | 20 | 35 | 54 | 49  | 40 | 65 |
| 4. | <b>6</b>  | 32 | 36 | 16 | 60 | 24 | 97 | 35 | 54 | 49  | 40 | 65 |
| 5. | <b>10</b> | 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?  | _____ |
| 14. | Is 28 a multiple of 3?  | _____ | 15. | Is 63 a multiple of 5?  | _____ |
16. Harry is 30 years old. Is his age a multiple of.....
- 2?** \_\_\_\_\_      **3?** \_\_\_\_\_      **5?** \_\_\_\_\_      **6?** \_\_\_\_\_      **10?** \_\_\_\_\_

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 |

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 9

### 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     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

2. 56     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

3. 78     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

4. 99     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

5. 43     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

6. 27     $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

7. 144     $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

8. 316     $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

Multiple of 9?    Yes    No

9. List the first 10 multiples of **9**.  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

10. Is 83 a multiple of 9? \_\_\_\_\_

11. Is 54 a multiple of 9? \_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 4 and 8

### 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  $4 \times 3 = 12$  and  $4 \times 4 = 16$ , 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  $4 \times 5 = 20$ , so 20 is a multiple of 4.

I know  $8 \times 2 = 16$  and  $8 \times 3 = 24$ , 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** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify common multiples using a Venn diagram

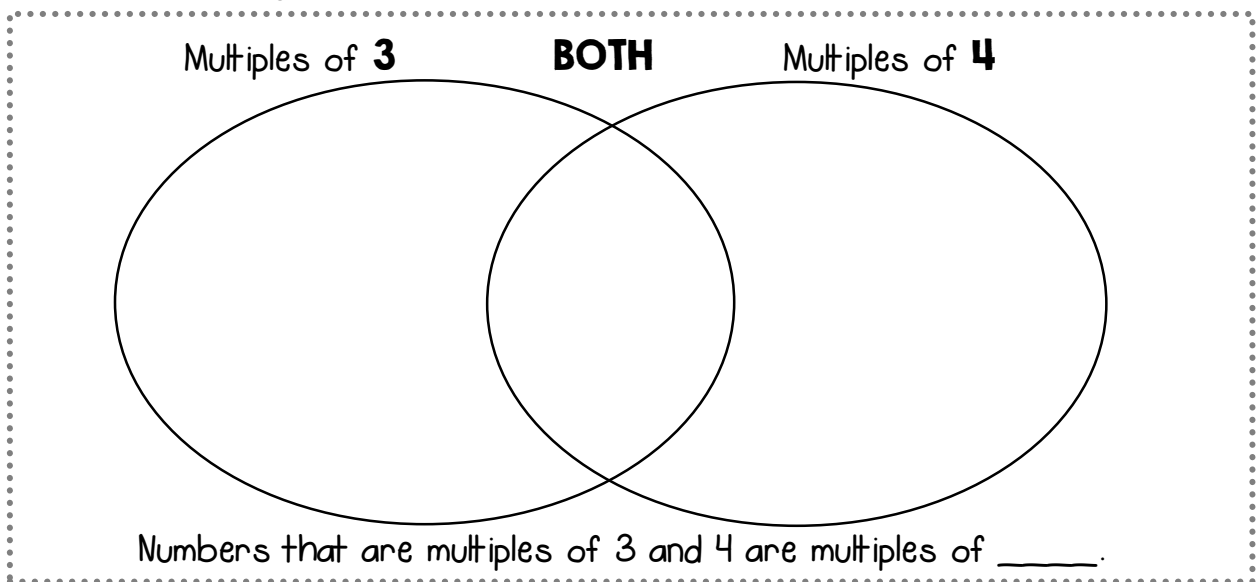
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Use Venn diagrams to show common factors.

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.

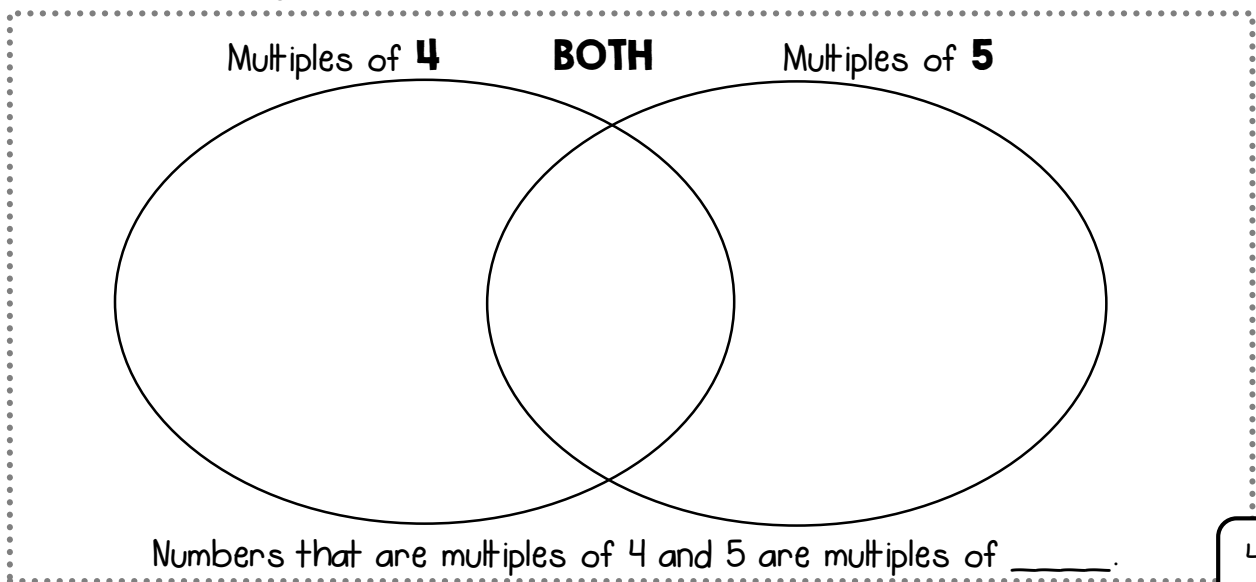
1. Multiples of **3** and **4**

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



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



Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify multiples  
of 7 and 11

### Multiples of 7 and 11

Is a number a multiple of 7 or 11?

Multiples of 7	Multiples of 11
There is no short cut to find the multiples of 7. ☹ You must skip count or think of your multiplication facts $\times 7$ .	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.
<u>Examples:</u> <b>35</b> is a multiple of 7 because $7 \times 5 = 35$ <b>43</b> is a NOT a multiple of 7 because $7 \times 6 = 42$ , so 43 would not be a multiple of 7.	<u>Examples:</u> <b>44</b> is a multiple of 11 because $4 \times 11 = 44$ <b>77</b> is a multiple of 11 because $7 \times 11 = 77$

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.

5. Is 21 a multiple of 7? \_\_\_\_\_      6. Is 66 a multiple of 11? \_\_\_\_\_

7. Is 37 a multiple of 7? \_\_\_\_\_      8. Is 75 a multiple of 11? \_\_\_\_\_

9. Is 56 a multiple of 7? \_\_\_\_\_      10. Is 94 a multiple of 11? \_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Divisibility rules  
for identifying  
multiples of a  
given number

### 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.

Number	Rule or Strategy	Examples
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules to eliminate choices in multiple choice

### 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



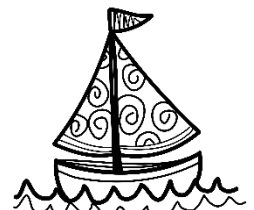
3. A plant is full of cute little ladybugs. The number of ladybugs on the leaf is a multiple of 3 and 5, but not a multiple of 2. How many ladybugs are on the plant?

- 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

4.OA.4  
Pg. 13



Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules to find factor pairs

### Finding Factor Pairs

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

Example: **3** x **4** = 12      **3** and **4** are both **factors** of 12.  
**factor** x **factor** = 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.

<b>1</b>	1 x 15	The first factor pair of every number is 1 x itself.
<b>2</b>	-	15 is odd. You can rule out all even factors, because odd numbers only have odd factors.
<b>3</b>	3 x 5	3 is a factor of 15 because $1 + 5 = 6$ . 6 is a multiple of 3.
<b>4</b>	-	15 is odd, so it only has odd factors. 4 is even.
<b>5</b>	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.

<b>1</b>	1 x 24	The first factor pair of every number is 1 x itself.
<b>2</b>	2 x 12	24 is even. All even numbers have 2 as a factor.
<b>3</b>	3 x 8	3 is a factor of 24 because $2 + 4 = 6$ . 6 is a multiple of 3.
<b>4</b>	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 $4 \times 6 = 24$
<b>5</b>	-	24 does not end in a 5 or 0.
<b>6</b>	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.

4.OA.4  
Pg. 4

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules to find factor pairs

### 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.

<b>1</b>	1 x 30	The first factor pair of every number is 1 x itself.
<b>2</b>	2 x 15	30 is even. All even numbers have 2 as a factor.
<b>3</b>	3 x 10	3 is a factor of 30 because $3 + 0 = 3$ . 3 is a multiple of 3.
<b>4</b>	-	$30 = 2 \times 15$ ; 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.
<b>5</b>	5 x 6	30 ends in a 0, so it is a multiple of 5.
<b>6</b>	6 x 5	2 and 3 are both factors of 30, so 6 is also a factor.

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.

<p>1. Factor Pairs of <b>20</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 20:</p> <p>____, ____, ____, ____, ____</p>	<p>2. Factor Pairs of <b>32</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 32:</p> <p>____, ____, ____, ____, ____</p>	<p>3. Factor Pairs of <b>45</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 45:</p> <p>____, ____, ____, ____, ____</p>
<p>4. Factor Pairs of <b>40</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 40:</p> <p>____, ____, ____, ____, ____</p> <p>____, ____</p>	<p>5. Factor Pairs of <b>28</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 28:</p> <p>____, ____, ____, ____, ____</p>	<p>6. Factor Pairs of <b>42</b></p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>_____ x _____</p> <p>Factors of 42:</p> <p>____, ____, ____, ____, ____</p> <p>____, ____</p>

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use multiples rules  
& strategies to  
find factor pairs

### 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.

<p>1. Factor Pairs of <b>21</b></p> <p>_____ x _____ _____ x _____</p> <p>Factors of 21: ____, ____, ____, ____</p>	<p>2. Factor Pairs of <b>34</b></p> <p>_____ x _____ _____ x _____</p> <p>Factors of 34: ____, ____, ____, ____</p>	<p>3. Factor Pairs of <b>49</b></p> <p>_____ x _____ _____ x _____</p> <p>Factors of 49: ____, ____, ____</p>
<p>4. Factor Pairs of <b>48</b></p> <p>_____ x _____ _____ x _____ _____ x _____ _____ x _____ _____ x _____</p> <p>Factors of 48: ____, ____, ____, ____, ____, ____ ____, ____, ____, ____</p>	<p>5. Factor Pairs of <b>50</b></p> <p>_____ x _____ _____ x _____ _____ x _____</p> <p>Factors of 50: ____, ____, ____, ____, ____</p>	<p>6. Factor Pairs of <b>56</b></p> <p>_____ x _____ _____ x _____ _____ x _____ _____ x _____</p> <p>Factors of 56: ____, ____, ____, ____, ____, ____ ____, ____</p>

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.

<p>EX. Factors of <b>22</b></p> <p>1 <u>1 x 22</u> 2 <u>2 x 11</u> 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 -</p> <p>Factors of <b>22</b>: _____</p>	<p>7. Factors of <b>27</b></p> <p>1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____</p> <p>Factors of <b>27</b>: _____</p>	<p>8. Factors of <b>64</b></p> <p>1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____</p> <p>Factors of <b>64</b>: _____</p>	<p>9. Factors of <b>31</b></p> <p>1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____</p> <p>Factors of <b>31</b>: _____</p>
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Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use models, tiles, and/or arrays to find factor pairs

### Using Models to Find Factor Pairs

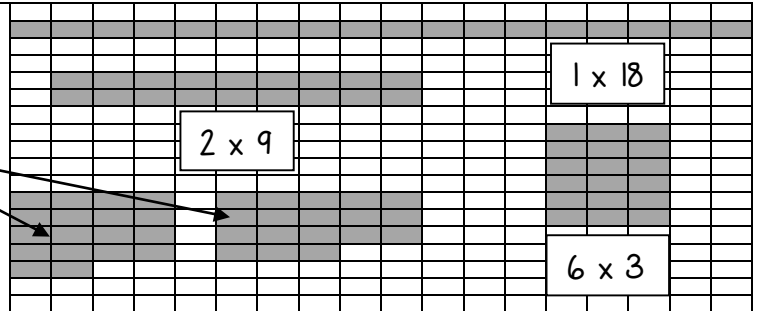
You can use tiles or draw arrays to find factor pairs.

Ex: Find the factor pairs of 18.

$1 \times 18$   
 $2 \times 9$   
 $3 \times 6$

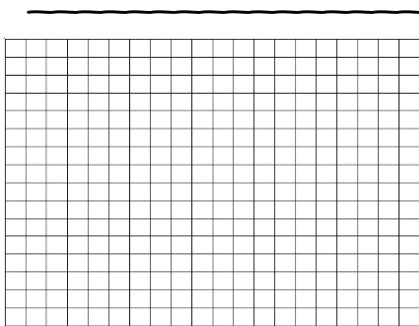
4 and 5 are not factors of 18. An array could not be made.

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

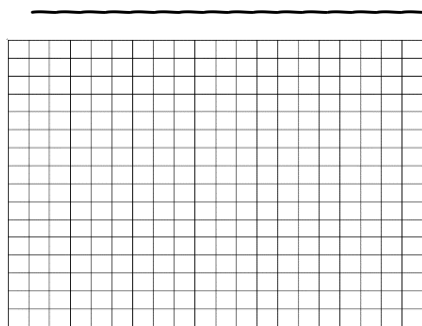


Use the grids below to show the factor pairs of each number below. Draw and label each array with the correct factor pair. Then, list the factors for each number.

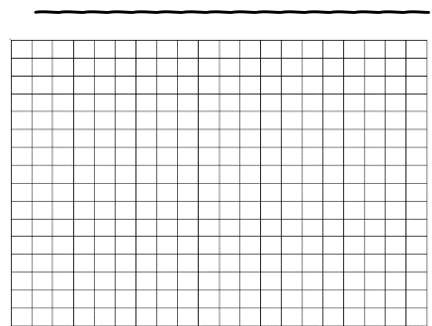
1. Factors of 15:



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:

\_\_\_\_\_

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use models and divisibility rules to find factor pairs

### 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.

4. Factor Pairs of **35**

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

Factors of 35:

\_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

5. Factor Pairs of **44**

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

Factors of 44:

\_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

6. Factor Pairs of **24**

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

\_\_\_\_\_ x \_\_\_\_\_

Factors of 24:

\_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

7. Factor Pairs of **39**

Factors of 39:

\_\_\_\_\_

8. Factor Pairs of **36**

Factors of 36:

\_\_\_\_\_

9. Factor Pairs of **60**

Factors of 60:

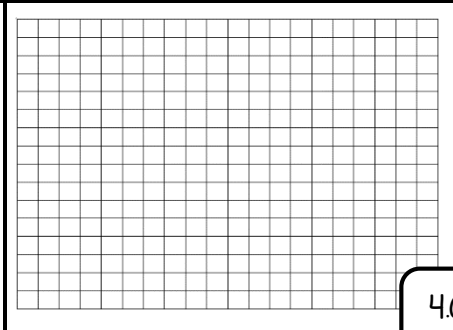
\_\_\_\_\_

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

Factor Pairs of 16:

Factors of 16:

\_\_\_\_\_



Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

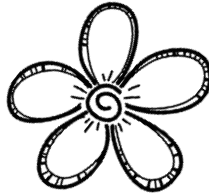
Use divisibility rules  
to solve word  
problems

### Word Problems: Factors and Multiples

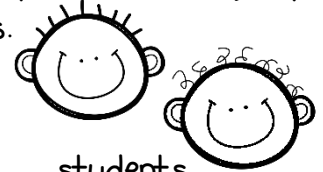
Use divisibility rules and/or models to answer questions related to factors and multiples.

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: \_\_\_\_\_

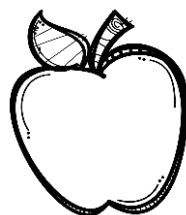


4. Caroline has a bag of 27 Skittles. Can she share her Skittles evenly with her brother Luke by dividing the Skittles into two equal groups? \_\_\_\_\_

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



Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules  
to identify a number  
as prime or  
composite

### Prime and Composite Numbers

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

Prime Numbers	Composite Numbers
Only 2 factors	At least 3 factors
<b>Examples:</b> 19 (Factors: 1, 19) 37 (Factors: 1, 37)	<b>Examples:</b> 25 (Factors: 1, 5, 25) 33 (Factors: 1, 3, 11, 33)

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      **95:** composite      **31:** prime  
\*because it is even      \*ends in 5      \*odd; can only be divided by odd numbers  
\*not divisible by 3, 5, 7, or 9

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 \_\_\_\_\_



Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Identify numbers  
1 to 100 as prime  
or composite

### 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).

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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.

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules  
to identify a number  
as prime or  
composite

### 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.

	#	Factor Pairs	Prime or Composite?
1.	<b>22</b>		
2.	<b>17</b>		
3.	<b>38</b>		
4.	<b>49</b>		
5.	<b>64</b>		
6.	<b>41</b>		

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.

---

---

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules  
to identify a number  
as prime or  
composite

### 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.

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

Name \_\_\_\_\_

# Practice Sheet

## 4.OA.4

Use divisibility rules  
to identify a number  
as prime or  
composite

### Multiple Choice: Factors and Multiples

Choose the best answer for each question below.

1. Which number below is <u>not</u> a factor of 50?  A. 2      B. 4      C. 5      D. 10	2. Which number below is a multiple of 6?  A. 15      B. 22      C. 31      D. 36
3. Which number below is a factor of 30, but is <u>not</u> a multiple of 3?  A. 6      B. 15      C. 8      D. 10	4. Which number below is a factor of 48, but is <u>not</u> a multiple of 4?  A. 12      B. 11      C. 6      D. 8
5. Which set of numbers are all <u>prime</u> 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 <u>composite</u> 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 <u>not</u> a multiple of 2?  A. 3      B. 8      C. 12      D. 6	8. Which number below is a factor of 21 and 33?  A. 7      B. 11      C. 3      D. 9
9. Which number below is a factor of 2 and 3, but not 5?  A. 36      B. 27      C. 46      D. 30	10. Which number below is a multiple of 3, 4, and 5?  A. 45      B. 48      C. 50      D. 60
11. Which number below has the <u>most</u> factors?  A. 30      B. 31      C. 34      D. 35	12. Which number below has <u>exactly</u> 5 factors?  A. 10      B. 12      C. 16      D. 19

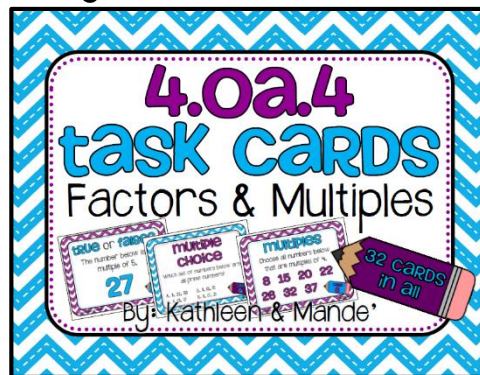
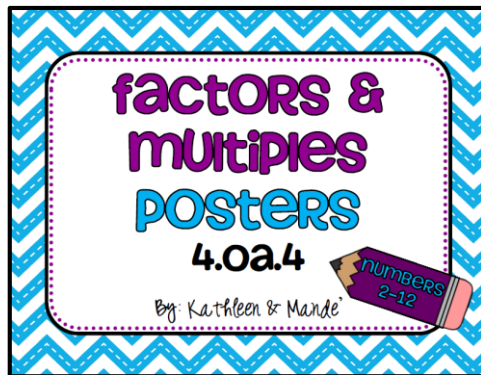
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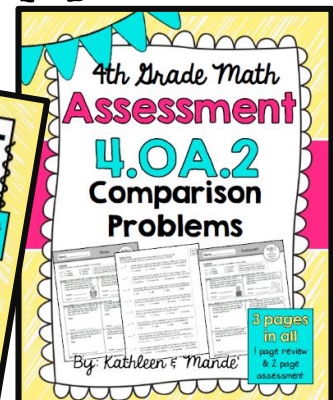
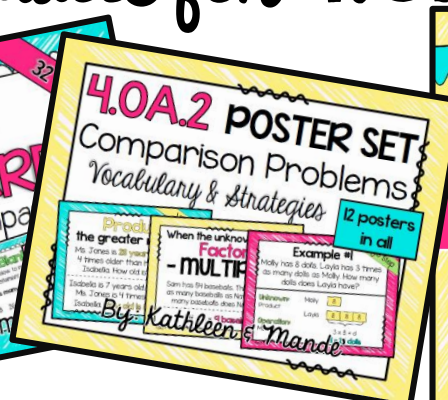
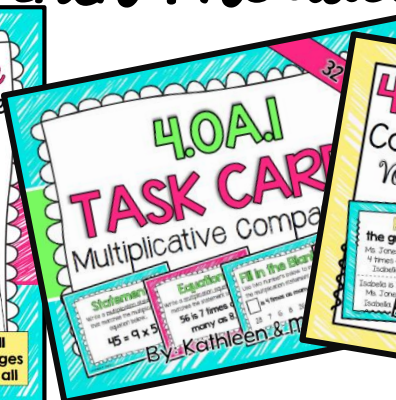
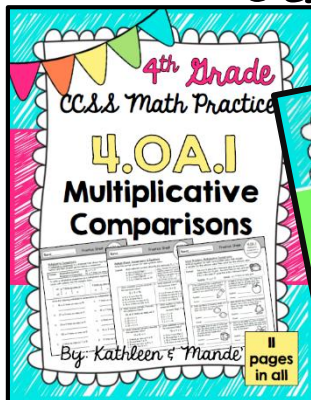
😊 Thanks, Kathleen & Mande'

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Identify multiples  
of a number by  
skip counting or  
multiplying

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.



Identify multiples  
of 2, 5, and 10Multiples of 2, 5, and 10

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

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

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      13. Is 10 a multiple of 10?    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



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 87 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  $\underline{3} + \underline{6} = \underline{9}$   
Multiple of 3?  Yes  No

2. 82  $\underline{8} + \underline{2} = \underline{10}$   
Multiple of 3?  Yes  No

3. 45  $\underline{4} + \underline{5} = \underline{9}$   
Multiple of 3?  Yes  No

4. 56  $\underline{5} + \underline{6} = \underline{11}$   
Multiple of 3?  Yes  No

5. 79  $\underline{7} + \underline{9} = \underline{16}$   
Multiple of 3?  Yes  No

6. 90  $\underline{9} + \underline{0} = \underline{9}$   
Multiple of 3?  Yes  No

7. 18  $\underline{1} + \underline{8} = \underline{9}$   
Multiple of 3?  Yes  No

8. 66  $\underline{6} + \underline{6} = \underline{12}$   
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

Identify multiples  
of 2, 3, 5, and 10Put 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      14. Is 30 a multiple of 2? 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...      20. Is the number below a multiple of...

- 2? yes  
3? no  
5? yes  
10? yes

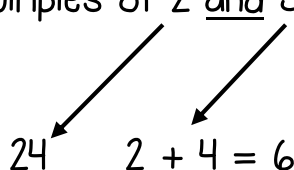
**20**

- 2? no  
3? yes  
5? yes  
10? no

**45**

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.

Multiples of 2	Multiples of 3	Multiples of 6
End in 0, 2, 4, 6, or 8	The sum of the digits is a multiple of 3	Are multiples of 2 <u>and</u> 3
Ex: <u>12</u> , <u>428</u> , <u>94</u> , <u>8</u> , <u>60</u> , <u>32</u>	Ex: 63 $6 + 3 = 9$	Ex: 24 

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? yes  
 multiple of 3? no  
 multiple of 6? no
5. Is **42** a...  
 multiple of 2? yes  
 multiple of 3? yes  
 multiple of 6? yes
6. Is **39** a...  
 multiple of 2? no  
 multiple of 3? yes  
 multiple of 6? no
7. Is **54** a...  
 multiple of 2? yes  
 multiple of 3? yes  
 multiple of 6? yes
8. Is **83** a...  
 multiple of 2? no  
 multiple of 3? no  
 multiple of 6? no
9. Is **36** a...  
 multiple of 2? yes  
 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

11. Is 88 a multiple of 6? no     12. Is 72 a multiple of 6? yes

Identify common multiples using a Venn diagram

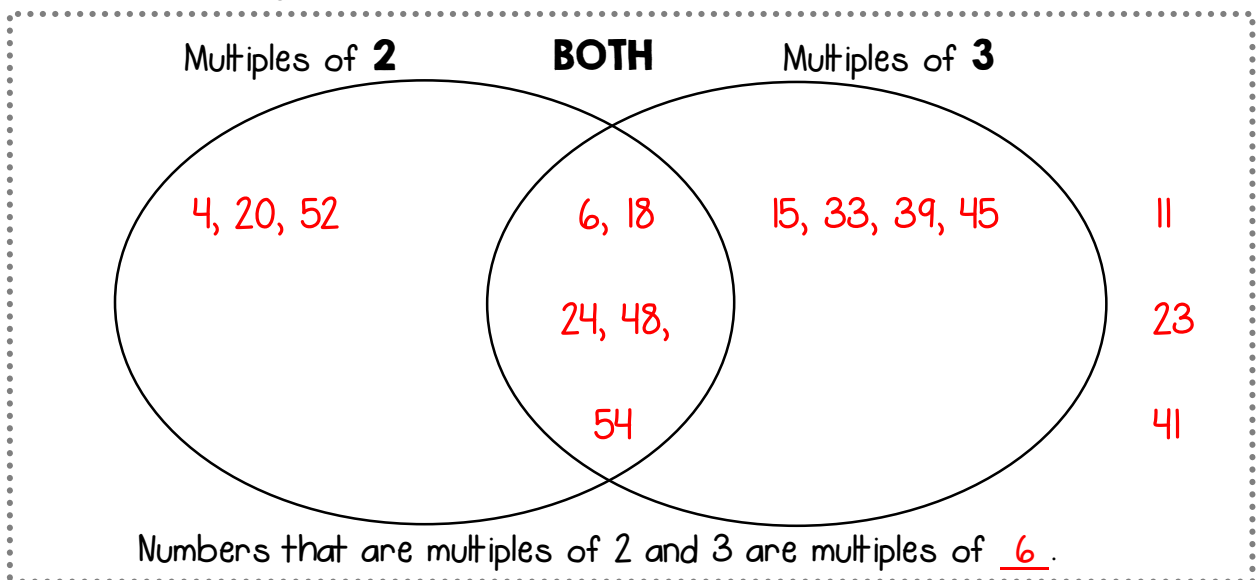
### Multiples & Venn Diagrams (2, 3, & 5)

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.

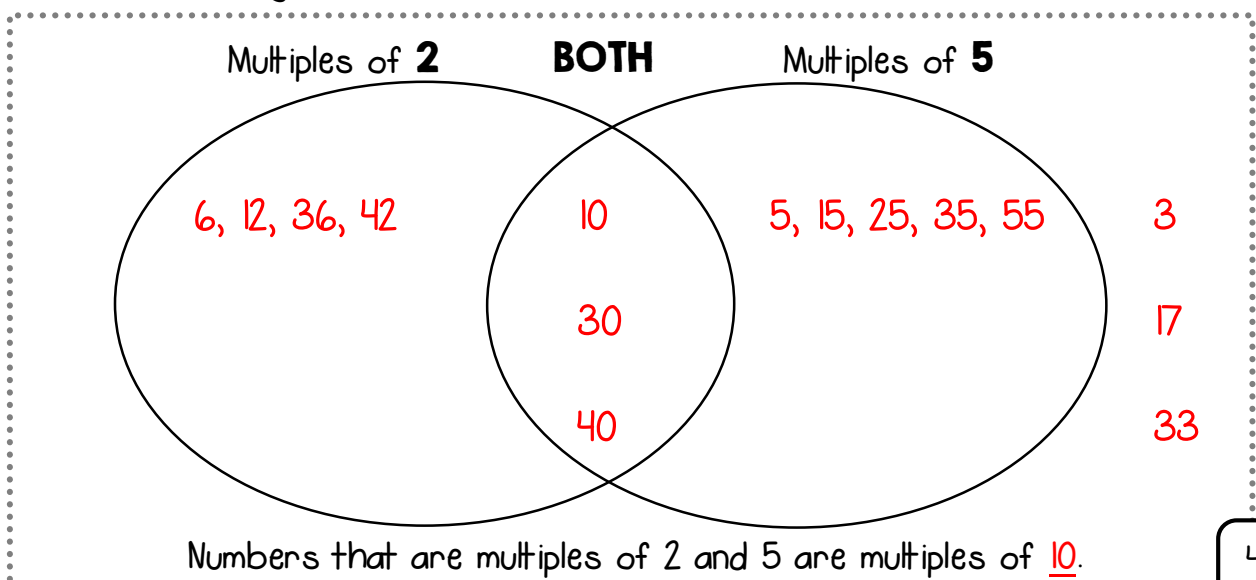
1. Multiples of **2** and **3**

Place the following numbers: 4, 6, 11, 15, 18, 20, 23, 24, 33, 39, 41, 45, 48, 52, 54



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



Identify multiples  
of 2, 3, 5, 6, and  
10

### Put It All Together: Multiples of 2, 3, 5, 6, and 10

Circle the numbers that are multiples of each given number.

- |    |           |      |      |      |      |      |      |      |      |       |      |      |
|----|-----------|------|------|------|------|------|------|------|------|-------|------|------|
| 1. | <b>2</b>  | (16) | 43   | 97   | (86) | (30) | 59   | (64) | (12) | 23    | (38) | 55   |
| 2. | <b>3</b>  | (15) | (96) | (48) | 19   | 25   | (33) | 61   | 70   | (72)  | 58   | (63) |
| 3. | <b>5</b>  | 42   | (35) | (60) | 47   | 21   | (20) | (35) | 54   | 49    | (40) | (65) |
| 4. | <b>6</b>  | 32   | (36) | 16   | (60) | (24) | 97   | 35   | (54) | 49    | 40   | 65   |
| 5. | <b>10</b> | (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?  | <u>yes</u> | 7.  | Is 72 a multiple of 3?  | <u>yes</u> |
| 8.  | Is 36 a multiple of 6?  | <u>yes</u> | 9.  | Is 40 a multiple of 10? | <u>yes</u> |
| 10. | Is 55 a multiple of 10? | <u>no</u>  | 11. | Is 33 a multiple of 6?  | <u>no</u>  |
| 12. | Is 75 a multiple of 5?  | <u>yes</u> | 13. | Is 27 a multiple of 2?  | <u>no</u>  |
| 14. | Is 28 a multiple of 3?  | <u>no</u>  | 15. | Is 63 a multiple of 5?  | <u>no</u>  |

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  $\underline{3} + \underline{6} = \underline{9}$

Multiple of 9?  Yes  No

2. 56  $\underline{5} + \underline{6} = \underline{11}$

Multiple of 9?  Yes  No

3. 78  $\underline{7} + \underline{8} = \underline{15}$

Multiple of 9?  Yes  No

4. 99  $\underline{9} + \underline{9} = \underline{18}$

Multiple of 9?  Yes  No

5. 43  $\underline{4} + \underline{3} = \underline{7}$

Multiple of 9?  Yes  No

6. 27  $\underline{2} + \underline{7} = \underline{9}$

Multiple of 9?  Yes  No

7. 44  $\underline{1} + \underline{4} + \underline{4} = \underline{9}$

Multiple of 9?  Yes  No

8. 316  $\underline{3} + \underline{1} + \underline{6} = \underline{10}$

Multiple of 9?  Yes  No

9. List the first 10 multiples of **9**.  $\underline{9}, \underline{18}, \underline{27}, \underline{36}, \underline{45},$   
 $\underline{54}, \underline{63}, \underline{72}, \underline{81}, \underline{90}$

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  $4 \times 3 = 12$  and  $4 \times 4 = 16$ , 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  $4 \times 5 = 20$ , so 20 is a multiple of 4.

I know  $8 \times 2 = 16$  and  $8 \times 3 = 24$ , so 20 is NOT a multiple of 8.

Answer yes or no for each question below.

- |  |   |  |
|--|---|--|
| 1. Is <b>25</b> a...<br>multiple of 2? <u>no</u><br>multiple of 4? <u>no</u><br>multiple of 8? <u>no</u>   | 2. Is <b>18</b> a...<br>multiple of 2? <u>yes</u><br>multiple of 4? <u>no</u><br>multiple of 8? <u>no</u>   | 3. Is <b>44</b> a...<br>multiple of 2? <u>yes</u><br>multiple of 4? <u>yes</u><br>multiple of 8? <u>no</u> |
| 4. Is <b>36</b> a...<br>multiple of 2? <u>yes</u><br>multiple of 4? <u>yes</u><br>multiple of 8? <u>no</u> | 5. Is <b>32</b> a...<br>multiple of 2? <u>yes</u><br>multiple of 4? <u>yes</u><br>multiple of 8? <u>yes</u> | 6. Is <b>63</b> a...<br>multiple of 2? <u>no</u><br>multiple of 4? <u>no</u><br>multiple of 8? <u>no</u>   |

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



Identify common multiples using a Venn diagram

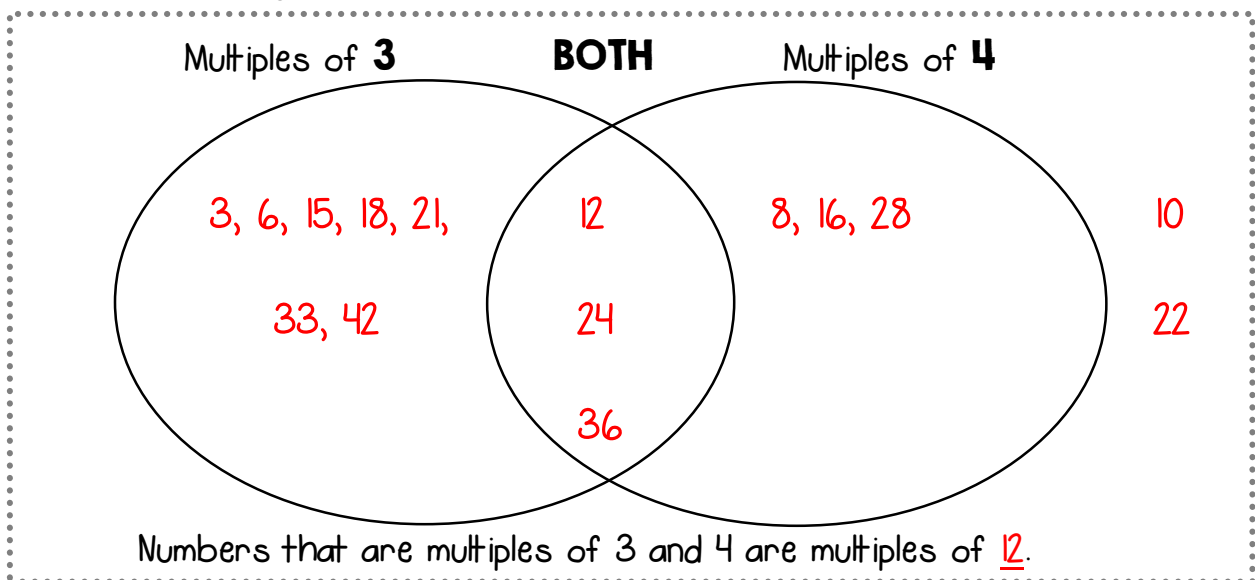
### Multiples & Venn Diagrams (3, 4, & 5)

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.

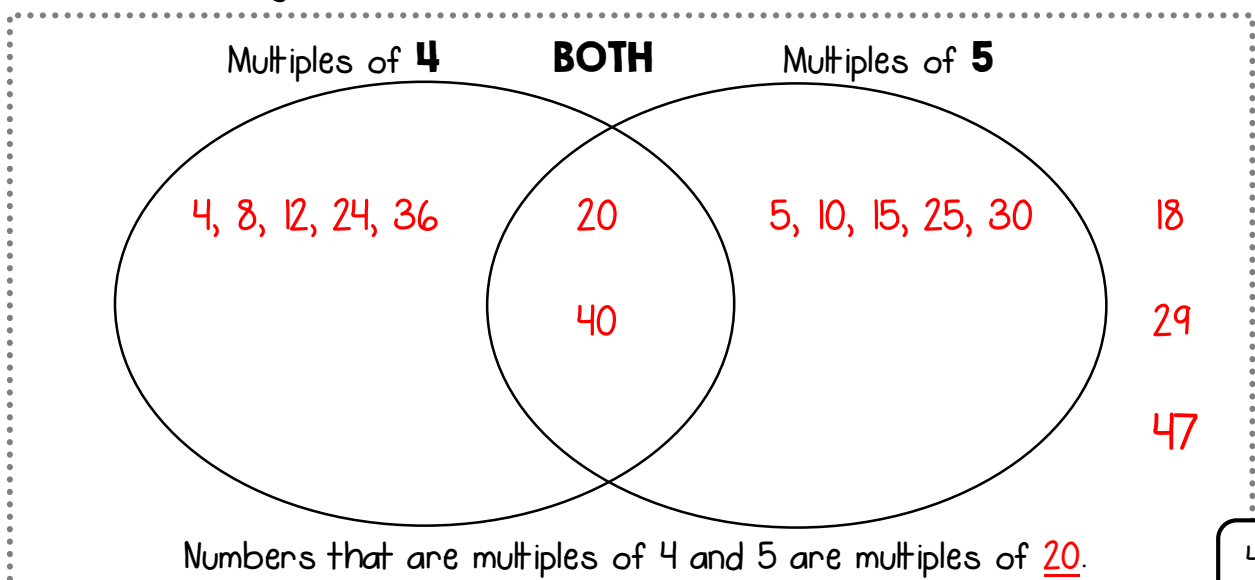
1. Multiples of **3** and **4**

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



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 7 and 11

Is a number a multiple of 7 or 11?

Multiples of 7	Multiples of 11
There is no short cut to find the multiples of 7. ☹ You must skip count or think of your multiplication facts $\times 7$ .	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.
<u>Examples:</u> <b>35</b> is a multiple of 7 because $7 \times 5 = 35$ <b>43</b> is a NOT a multiple of 7 because $7 \times 6 = 42$ , so 43 would not be a multiple of 7.	<u>Examples:</u> <b>44</b> is a multiple of 11 because $4 \times 11 = 44$ <b>77</b> is a multiple of 11 because $7 \times 11 = 77$

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

Answer yes or no for each question below.

5. Is 21 a multiple of 7? yes      6. Is 66 a multiple of 11? yes
7. Is 37 a multiple of 7? no      8. Is 75 a multiple of 11? no
9. Is 56 a multiple of 7? yes      10. Is 94 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.

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

Use divisibility rules to eliminate choices in multiple choice

## 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.

$$4 + 4 = 8 \quad 4 + 8 = 12$$

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?

Eliminate A and C - odd; not multiple of 2

Eliminate B -  $1+6 = 7$ ; not multiple of 3

- 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?

Eliminate C - odd; must be even

Must be B -  $4 \times 3 = 12$

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

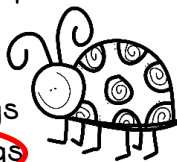


3. A plant is full of cute little ladybugs. The number of ladybugs on the leaf is a multiple of 3 and 5, but not a multiple of 2. How many ladybugs are on the plant?

Eliminate B and C - even; multiples of 2

Eliminate D -  $5+5 = 10$ ; not multiple of 3

- 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?

Eliminate A and C - odd; not multiple of 2

Must be B -  $4 \times 7 = 28$

- 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?

Yes:  $2 + 4 = 6$ , 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

## Finding Factor Pairs

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

Example:  $3 \times 4 = 12$       **3** and **4** are both **factors** of 12.  
**factor** x **factor** = 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.

<b>1</b>	$1 \times 15$	The first factor pair of every number is 1 x itself.
<b>2</b>	-	15 is odd. You can rule out all even factors, because odd numbers only have odd factors.
<b>3</b>	$3 \times 5$	3 is a factor of 15 because $1 + 5 = 6$ . 6 is a multiple of 3.
<b>4</b>	-	15 is odd, so it only has odd factors. 4 is even.
<b>5</b>	$5 \times 3$	15 ends in a 5, so it is a multiple of 5.

You can stop here because you have now repeated a factor pair:  $3 \times 5$  and  $5 \times 3$ . 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.

<b>1</b>	$1 \times 24$	The first factor pair of every number is 1 x itself.
<b>2</b>	$2 \times 12$	24 is even. All even numbers have 2 as a factor.
<b>3</b>	$3 \times 8$	3 is a factor of 24 because $2 + 4 = 6$ . 6 is a multiple of 3.
<b>4</b>	$4 \times 6$	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 $4 \times 6 = 24$
<b>5</b>	-	24 does not end in a 5 or 0.
<b>6</b>	$6 \times 4$	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:  $4 \times 6$  and  $6 \times 4$ . 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.

<b>1</b>	1 x 30	The first factor pair of every number is 1 x itself.
<b>2</b>	2 x 15	30 is even. All even numbers have 2 as a factor.
<b>3</b>	3 x 10	3 is a factor of 30 because $3 + 0 = 3$ . 3 is a multiple of 3.
<b>4</b>	-	$30 = 2 \times 15$ ; 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.
<b>5</b>	5 x 6	30 ends in a 0, so it is a multiple of 5.
<b>6</b>	6 x 5	2 and 3 are both factors of 30, so 6 is also a factor.

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.

<p>1. Factor Pairs of <b>20</b></p> $\begin{array}{r} \underline{1} \times \underline{20} \\ \underline{2} \times \underline{10} \\ \underline{4} \times \underline{5} \end{array}$ <p>Factors of 20: <u>1</u>, <u>2</u>, <u>4</u>, <u>5</u>, <u>10</u>, <u>20</u></p>	<p>2. Factor Pairs of <b>32</b></p> $\begin{array}{r} \underline{1} \times \underline{32} \\ \underline{2} \times \underline{16} \\ \underline{4} \times \underline{8} \end{array}$ <p>Factors of 32: <u>1</u>, <u>2</u>, <u>4</u>, <u>8</u>, <u>16</u>, <u>32</u></p>	<p>3. Factor Pairs of <b>45</b></p> $\begin{array}{r} \underline{1} \times \underline{45} \\ \underline{3} \times \underline{15} \\ \underline{5} \times \underline{9} \end{array}$ <p>Factors of 45: <u>1</u>, <u>3</u>, <u>5</u>, <u>9</u>, <u>15</u>, <u>45</u></p>
<p>4. Factor Pairs of <b>40</b></p> $\begin{array}{r} \underline{1} \times \underline{40} \\ \underline{2} \times \underline{20} \\ \underline{4} \times \underline{10} \\ \underline{5} \times \underline{8} \end{array}$ <p>Factors of 40: <u>1</u>, <u>2</u>, <u>4</u>, <u>5</u>, <u>8</u>, <u>10</u>, <u>20</u>, <u>40</u></p>	<p>5. Factor Pairs of <b>28</b></p> $\begin{array}{r} \underline{1} \times \underline{28} \\ \underline{2} \times \underline{14} \\ \underline{4} \times \underline{7} \end{array}$ <p>Factors of 28: <u>1</u>, <u>2</u>, <u>4</u>, <u>7</u>, <u>14</u>, <u>28</u></p>	<p>6. Factor Pairs of <b>42</b></p> $\begin{array}{r} \underline{1} \times \underline{42} \\ \underline{2} \times \underline{21} \\ \underline{3} \times \underline{14} \\ \underline{6} \times \underline{7} \end{array}$ <p>Factors of 42: <u>1</u>, <u>2</u>, <u>3</u>, <u>6</u>, <u>7</u>, <u>14</u>, <u>21</u>, <u>42</u></p>

Use multiples rules  
& strategies to  
find factor pairs

### 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.

<p>1. Factor Pairs of <b>21</b></p> $\begin{array}{r} \underline{1} \times \underline{21} \\ \underline{3} \times \underline{7} \end{array}$ <p>Factors of 21: <u>1</u>, <u>3</u>, <u>7</u>, <u>21</u></p>	<p>2. Factor Pairs of <b>34</b></p> $\begin{array}{r} \underline{1} \times \underline{34} \\ \underline{2} \times \underline{17} \end{array}$ <p>Factors of 34: <u>1</u>, <u>2</u>, <u>17</u>, <u>34</u></p>	<p>3. Factor Pairs of <b>49</b></p> $\begin{array}{r} \underline{1} \times \underline{49} \\ \underline{7} \times \underline{7} \end{array}$ <p>Factors of 49: <u>1</u>, <u>7</u>, <u>49</u></p>
<p>4. Factor Pairs of <b>48</b></p> $\begin{array}{r} \underline{1} \times \underline{48} \\ \underline{2} \times \underline{24} \\ \underline{3} \times \underline{16} \\ \underline{4} \times \underline{12} \\ \underline{6} \times \underline{8} \end{array}$ <p>Factors of 48: <u>1</u>, <u>2</u>, <u>3</u>, <u>4</u>, <u>6</u>, <u>8</u>, <u>12</u>, <u>16</u>, <u>24</u>, <u>48</u></p>	<p>5. Factor Pairs of <b>50</b></p> $\begin{array}{r} \underline{1} \times \underline{50} \\ \underline{2} \times \underline{25} \\ \underline{5} \times \underline{10} \end{array}$ <p>Factors of 50: <u>1</u>, <u>2</u>, <u>5</u>, <u>10</u>, <u>25</u>, <u>50</u></p>	<p>6. Factor Pairs of <b>56</b></p> $\begin{array}{r} \underline{1} \times \underline{56} \\ \underline{2} \times \underline{28} \\ \underline{4} \times \underline{14} \\ \underline{7} \times \underline{8} \end{array}$ <p>Factors of 56: <u>1</u>, <u>2</u>, <u>4</u>, <u>7</u>, <u>8</u>, <u>14</u>, <u>28</u>, <u>56</u></p>

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.

<p>EX. Factors of <b>22</b></p> $\begin{array}{r} 1 \quad \underline{1 \times 22} \\ 2 \quad \underline{2 \times 11} \\ 3 \quad \underline{-} \\ 4 \quad \underline{-} \\ 5 \quad \underline{-} \\ 6 \quad \underline{-} \\ 7 \quad \underline{-} \\ 8 \quad \underline{-} \\ 9 \quad \underline{-} \\ 10 \quad \underline{-} \end{array}$ <p>Factors of <b>22</b>: <u>1</u>, <u>2</u>, <u>11</u>, <u>22</u></p>	<p>7. Factors of <b>27</b></p> $\begin{array}{r} 1 \quad \underline{1 \times 27} \\ 2 \quad \underline{-} \\ 3 \quad \underline{3 \times 9} \\ 4 \quad \underline{-} \\ 5 \quad \underline{-} \\ 6 \quad \underline{-} \\ 7 \quad \underline{-} \\ 8 \quad \underline{-} \\ 9 \quad \underline{9 \times 3} \\ 10 \quad \underline{-} \end{array}$ <p>Factors of <b>27</b>: <u>1</u>, <u>3</u>, <u>9</u>, <u>27</u></p>	<p>8. Factors of <b>64</b></p> $\begin{array}{r} 1 \quad \underline{1 \times 64} \\ 2 \quad \underline{2 \times 32} \\ 3 \quad \underline{-} \\ 4 \quad \underline{4 \times 16} \\ 5 \quad \underline{-} \\ 6 \quad \underline{-} \\ 7 \quad \underline{-} \\ 8 \quad \underline{8 \times 8} \\ 9 \quad \underline{-} \\ 10 \quad \underline{-} \end{array}$ <p>Factors of <b>64</b>: <u>1</u>, <u>2</u>, <u>4</u>, <u>8</u>, <u>16</u>, <u>32</u>, <u>64</u></p>	<p>9. Factors of <b>31</b></p> $\begin{array}{r} 1 \quad \underline{1 \times 31} \\ 2 \quad \underline{-} \\ 3 \quad \underline{-} \\ 4 \quad \underline{-} \\ 5 \quad \underline{-} \\ 6 \quad \underline{-} \\ 7 \quad \underline{-} \\ 8 \quad \underline{-} \\ 9 \quad \underline{-} \\ 10 \quad \underline{-} \end{array}$ <p>Factors of <b>31</b>: <u>1</u>, <u>31</u></p>
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Use models, tiles, and/or arrays to find factor pairs

Using Models to Find Factor Pairs

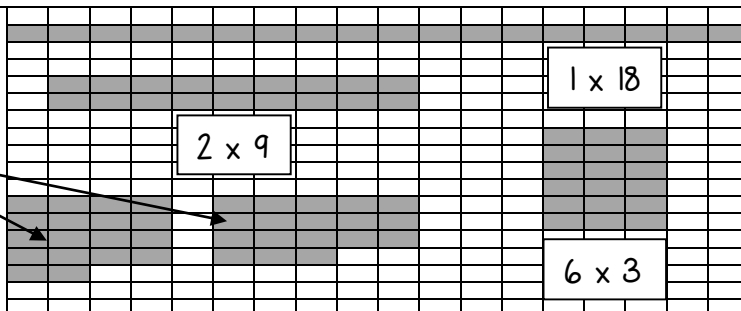
You can use tiles or draw arrays to find factor pairs.

Ex: Find the factor pairs of 18.

- 1 x 18
- 2 x 9
- 3 x 6

4 and 5 are not factors of 18. An array could not be made.

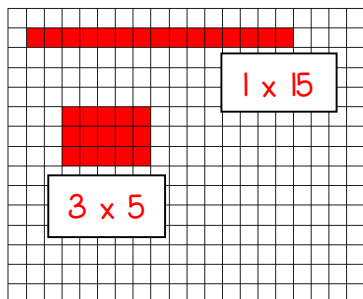
Factors of 18: 1, 2, 3, 6, 9, and 18



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.

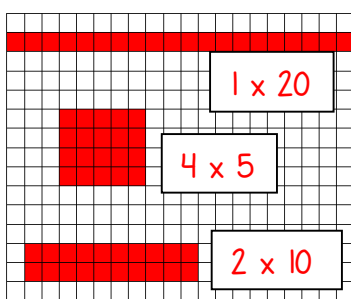
1. Factors of 15:

1, 3, 5, 15



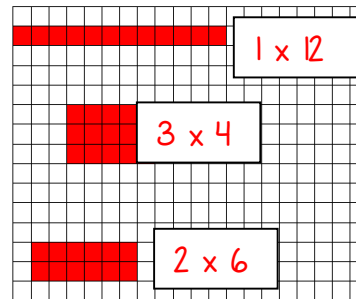
2. Factors of 20:

1, 2, 4, 5, 10, 20



3. Factors of 12:

1, 2, 3, 4, 6, 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.

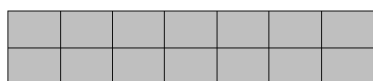
4. Factors of 14:

1, 2, 7, 14

1 x 14



2 x 7



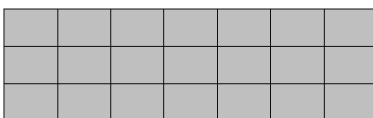
5. Factors of 21:

1, 3, 7, 21

1 x 21



3 x 7



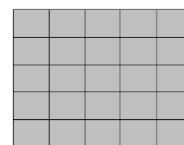
6. Factors of 25:

1, 5, 25

1 x 25



5 x 5



Use models and  
divisibility rules to  
find factor pairs

### 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**

$$\begin{array}{r} \underline{1} \times \underline{35} \\ \underline{5} \times \underline{7} \end{array}$$

Factors of 35:

1, 5, 7, 35

5. Factor Pairs of **44**

$$\begin{array}{r} \underline{1} \times \underline{44} \\ \underline{2} \times \underline{22} \\ \underline{4} \times \underline{11} \end{array}$$

Factors of 44:

1, 2, 4, 11, 22, 44

6. Factor Pairs of **24**

$$\begin{array}{r} \underline{1} \times \underline{24} \\ \underline{2} \times \underline{12} \\ \underline{3} \times \underline{8} \\ \underline{4} \times \underline{6} \end{array}$$

Factors of 24:

1, 2, 3, 4, 6, 8, 12, 24

7. Factor Pairs of **39**

$$1 \times 39 \quad 3 \times 13$$

Factors of 39:

1, 3, 13, 39

8. Factor Pairs of **36**

$$1 \times 36 \quad 2 \times 18 \\ 3 \times 12 \quad 4 \times 9 \quad 6 \times 6$$

Factors of 36:

1, 2, 3, 4, 6, 9, 12, 18, 36

9. Factor Pairs of **60**

$$1 \times 60 \quad 2 \times 30 \quad 3 \times 20 \\ 4 \times 15 \quad 5 \times 12 \quad 6 \times 10$$

Factors of 60:

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

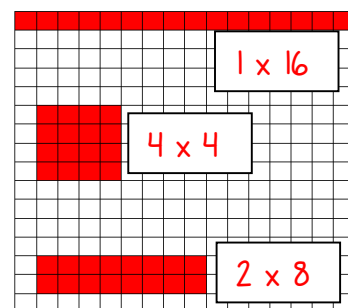
10. Use the grids below to show all the factor pairs of 16.

Factor Pairs of 16:

$$1 \times 16 \\ 2 \times 8 \\ 4 \times 4$$

Factors of 16:

1, 2, 4, 8, 16

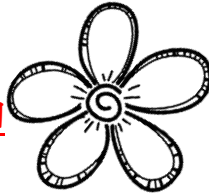


Word Problems: Factors and Multiples

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.

21, 24, 27, 30, 33, 36, 39



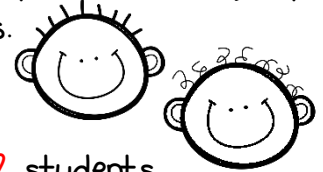
2. Mr. Patrick has 30 students in his class working on a project. Show at least 3 different ways he could equally group his students.

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

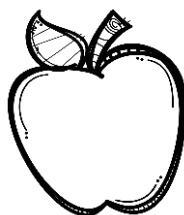
Explain why or why not using your knowledge of factors and multiples.

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  $4 \times 14 = 56$



Use divisibility rules  
to identify a number  
as prime or  
composite

## Prime and Composite Numbers

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

Prime Numbers	Composite Numbers
Only 2 factors	At least 3 factors
<b>Examples:</b> 19 (Factors: 1, 19) 37 (Factors: 1, 37)	<b>Examples:</b> 25 (Factors: 1, 5, 25) 33 (Factors: 1, 3, 11, 33)

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, 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      **95:** composite      **31:** prime  
 \*because it is even      \*ends in 5      \*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

Identify numbers  
1 to 100 as prime  
or composite

### 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).

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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.

Use divisibility rules  
to identify a number  
as prime or  
composite

### 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.

#	Factor Pairs	Prime or Composite?
1. <b>22</b>	$1 \times 22$ $2 \times 11$	composite
2. <b>17</b>	$1 \times 17$	prime
3. <b>38</b>	$1 \times 38$ $2 \times 19$	composite
4. <b>49</b>	$1 \times 49$ $7 \times 7$	composite
5. <b>64</b>	$1 \times 64$ $2 \times 32$ $4 \times 16$ $8 \times 8$	composite
6. <b>41</b>	$1 \times 41$	prime

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**     $7 \times 7 = 49$

12. 29    31    **39**    53     $3 \times 13 = 39$

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:  $6 + 3 = 9$ ;  $3 \times 21 = 63$ . Also,  $7 \times 9 = 63$ .

So, Joel is incorrect. 63 is a composite number because it has at least 3 factors (It has 6).

Use divisibility rules  
to identify a number  
as prime or  
composite

### 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.

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



Use divisibility rules to identify a number as prime or composite

### Multiple Choice: Factors and Multiples

Choose the best answer for each question below.

<p>1. Which number below is <u>not</u> a factor of 50?</p> <p>A. 2    <b>B. 4</b>    C. 5    D. 10</p> <p><math>2 \times 25</math>    <math>5 \times 10</math>    <math>10 \times 5</math></p>	<p>2. Which number below is a multiple of 6?</p> <p>A. 15    B. 22    C. 31    <b>D. 36</b></p> <p>Odd    not multiple of 3    odd    <math>6 \times 6 = 36</math></p>
<p>3. Which number below is a factor of 30, but is <u>not</u> a multiple of 3?</p> <p>A. 6    B. 15    C. 8    <b>D. 10</b></p> <p>Mult. of 3    Mult. of 3    Not factor of 30    <math>3 \times 10</math> not mult of 3</p>	<p>4. Which number below is a factor of 48, but is <u>not</u> a multiple of 4?</p> <p>A. 12    B. 11    <b>C. 6</b>    D. 8</p> <p>Mult. of 4    Not factor of 48    <math>6 \times 8</math> not mult of 4    Mult. of 4</p>
<p>5. Which set of numbers are all <u>prime</u> numbers?</p> <p>A. <del>9</del>, 11, 17, 23    <b>B. 11, 23, 31, 47</b></p> <p>C. 11, 23, 31, <del>39</del>    D. 17, 31, <del>33</del>, <del>39</del></p>	<p>6. Which set of numbers are all <u>composite</u> numbers?</p> <p>A. <del>2</del>, 8, 12, 24    <b>B. 21, 24, 36, 49</b></p> <p>C. 15, 18, 24, <del>29</del>    D. 20, <del>23</del>, 30, 33</p>
<p>7. Which number below is a factor of 24, but is <u>not</u> a multiple of 2?</p> <p><b>A. 3</b>    B. 8    C. 12    D. 6</p> <p><math>3 \times 8</math>    Mult. of 2    Mult. of 2    Mult. of 2</p> <p>not mult of 2</p>	<p>8. Which number below is a factor of 21 and 33?</p> <p>A. 7    B. 11    <b>C. 3</b>    D. 9</p> <p>not 33    not 21    <math>3 \times 7 = 21</math>    <math>3 \times 11 = 33</math>    neither</p>
<p>9. Which number below is a factor of 2 and 3, but not 5?</p> <p><b>A. 36</b>    B. 27    C. 46    D. 30</p> <p><math>2 \times 18 = 36</math>    not mult of 2    not mult of 3    mult. of 5</p> <p><math>3 \times 12 = 36</math></p>	<p>10. Which number below is a multiple of 3, 4, and 5?</p> <p>A. 45    B. 48    C. 50    <b>D. 60</b></p> <p>not 4    not 5    not 3    <math>3 \times 20</math>    <math>4 \times 15</math>    <math>5 \times 12</math></p>
<p>11. Which number below has the <u>most</u> factors?</p> <p><b>A. 30</b>    B. 31    C. 34    D. 35</p> <p>8    2    4    4</p>	<p>12. Which number below has <u>exactly</u> 5 factors?</p> <p>A. 10    B. 12    <b>C. 16</b>    D. 19</p> <p>4 factors    6 factors    1, 2, 4, 8, 16    2 factors</p>