Learning Objective

We will determine[1] all factor pairs of a number.

CFU

What are we going to do?

What does *determine* mean?
Determine means _____.

Activate Prior Knowledge

A **factor** is a number used in a multiplication problem.
A **product** is the answer to a multiplication problem.

Underline the factors.
Circle the product.

A. $3 \times 4 = 12$

B. $2 \times 6 = 12$

Multiplication Problem

$4 \times 5 = 20$

factor factor product

Make Connection

Students, the numbers used in a multiplication problem are called factors and the answer is called a product. Now, we will determine all factor pairs of a number or product.

Vocabulary

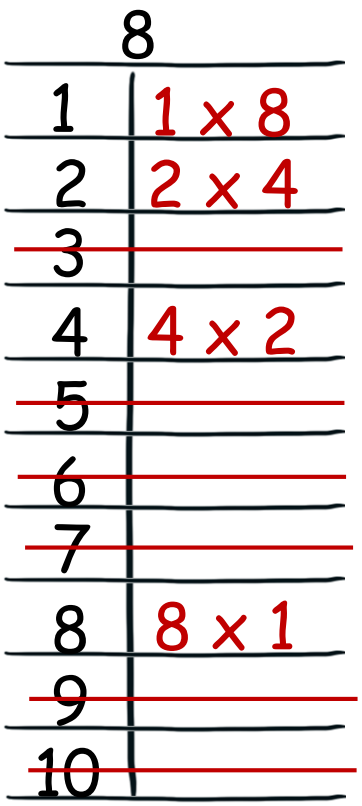
[1] figure out

A **factor pair** is two factors that multiply to get the same product.

- *A list of numbers can be used to determine factor pairs.*

Factor Pairs

Product	Factor Pairs
8	1 and 8 2 and 4
12	1 and 12 2 and 6 3 and 4
19	1 and 19



CFU

Why is 9 and 1 a factor pair of 9? Explain your answer.

In your own words, what is a factor pair?

"A factor pair is _____."

Skill Development/Guided Practice

A **factor pair** is two factors that multiply to get the same product.

- *A list of numbers can be used to determine factor pairs.*

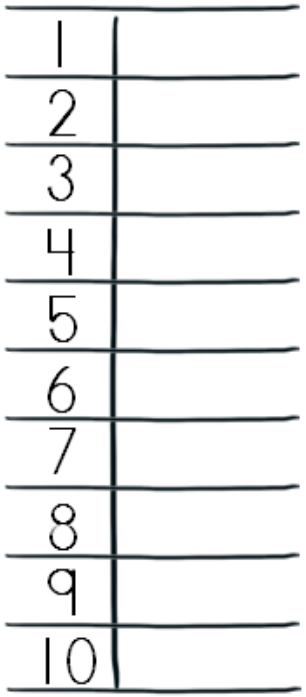
Determine all factor pairs of a number.

1. Determine if each number 1-10 is a factor. Hint: Use the list of numbers.
   a. Stop early if a factor pair is reversed[2] or if factors are the same numbers.
2. List all factor pairs. (write)
3. Interpret[3] the factor pairs. *"The factor pairs for the product _____ is _____."*

CFU

1. How did I/you determine if each number 1-10 is a factor?
3. How did I/you interpret the factor pairs?

1 15		2 14	
3 13		4 17	



Application

There are 15 students in the marching band. List the possible ways the band can line up in rows.

T: _____

There are 14 students going to the zoo. List the possible ways the students can be grouped.

S: _____

Vocabulary

[2] change the order of two things
[3] explain

Skill Development/Guided Practice (continued)

A **factor pair** is two factors that multiply to get the same product.

- *A list of numbers can be used to determine factor pairs.*

Determine all factor pairs of a number.

1. Determine if each number 1-10 is a factor. Hint: Use the list of numbers.
   a. Stop early if a factor pair is reversed or if factors are the same numbers.
2. List all factor pairs. (write)
3. Interpret the factor pairs. *"The factor pairs for the product _____ is _____."*

CFU

1. How did I/you determine if each number 1-10 is a factor?
3. How did I/you interpret the factor pairs?

5 36		6 16	
7 30		8 40	

1	
2	
3	
4	
5	
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7	
8	
9	
10	

Application

There are 16 marbles. List the possible ways the marbles can be grouped.

T: _____

There are 30 students in the classroom. List some possible ways the students can be grouped to sit together.

S: _____

Solving Math Problems

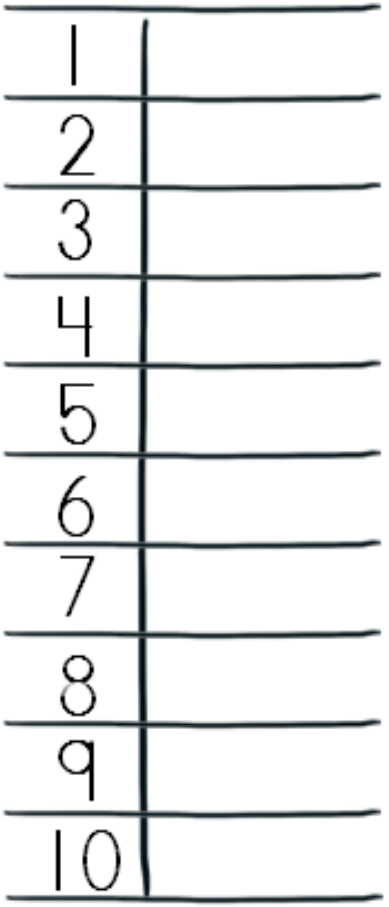
1. Determine what the question is asking.
2. Determine the math concept required.
3. Determine relevant information.
4. Solve the problem, then interpret the answer.
5. Check the reasonableness of your answer.

CFU

1. How did I/you determine what the question is asking?
2. How did I/you determine the math concept required?
3. How did I/you determine the relevant information?
4. How did I/you solve and interpret the problem?
5. How did I/you check the reasonableness of the answer?

Elise and Juan have 36 grapes. They are going to put an equal number of them into bags. Elise says that they can put 6 grapes into 6 bags. Daniel thinks that there are more ways to put equal numbers of grapes into bags. Describe one way that they could put an equal number of grapes into bags.

Adolfo and Greta have 72 apples. They are going to put an equal number of them into boxes. Adolfo says that they can put 8 apples into 9 boxes or 9 apples into 8 boxes. Greta thinks that there are more ways to put equal numbers of apples into boxes. Describe one way that they could put an equal number of apples into boxes.



A **factor pair** is two factors that multiply to get the same product.

- *A list of numbers can be used to determine factor pairs.*

Skill Closure

Determine all factor pairs of a number.

1. Determine if each number 1-10 is a factor. Hint: Use the list of numbers.
   - 1a. Stop early if a factor pair is reversed or if factors are the same numbers.
2. List all factor pairs. (write)
   Interpret the factor pairs. *"The factor pairs for the product _____ is _____."*

1		2	
12		5	

1	
2	
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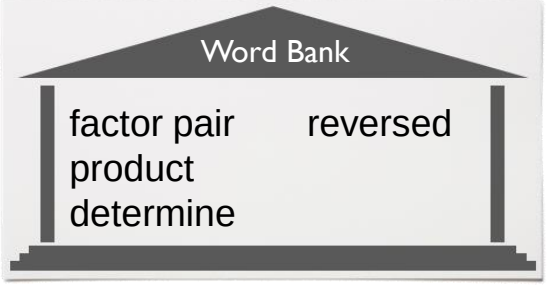
Access Common Core

Diego is having a birthday party. He is setting up the tables and chairs. Find the best way to set up the chairs evenly among the tables. He has 24 chairs. If he wants the same number of chairs at each table, how many tables do you think he should use? Why?

Summary Closure

What did you learn today about determining all factor pairs of a number? (Pair-Share)
Use words from the word bank.



Independent Practice

A **factor pair** is two factors that multiply to get the same product.

- *A list of numbers can be used to determine factor pairs.*

Determine all factor pairs of a number.

1. Determine if each number 1-10 is a factor. Hint: Use the list of numbers.
   - 1a. Stop early if a factor pair is reversed or if factors are the same numbers.
2. List all factor pairs. (write)
3. Interpret the factor pairs. *"The factor pairs for the product _____ is _____."*

1 35		2 23	
3 25		4 18	

1	
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Application

There is a fire drill at school today. There are 35 students in 4th grade. List the possible ways the students can line up.

S: _____

_____

_____

Periodic Review I

Determine all the factor pairs for the numbers below.

1. 31

2. 27

3. 40

4. 32

1	
2	
3	
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Access Common Core

The four-legged water creatures, six-legged water creatures, and eight-legged water creatures are having a contest to create a group with 24 total legs, so they can win the swimming race.

1. How many four-legged water creatures are needed to make a group with 24 legs?

2. How many six-legged water creatures are needed to make a group of 24 legs?

3. How many eight-legged water creatures are needed to make a group of 24 legs?

Periodic Review 2

Determine all the factor pairs for the numbers below.

1.

42

2.

49

1	
2	
3	
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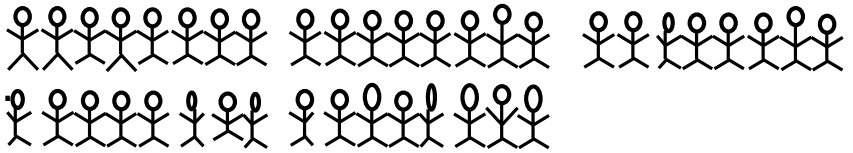
Access Common Core

There is a total of 40 students on a class field trip. Choose Yes or No to decide if the students can be grouped together in the given ways.

1. Eight groups with five students in each group ○ Yes ○ No

2. 1 x 40 ○ Yes ○ No

3.  ○ Yes ○ No

4. Nine groups with four students in each group ○ Yes ○ No

Periodic Review 3

Determine all the factor pairs for the numbers below.

1.

51

2.

54

1	
2	
3	
4	
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Access Common Core

The school's marching band is getting ready for competition. The beginning formation is the most important. If there are 36 students in the marching band, how many different formations could they use? Use factor pairs to list them below.

Explain why 36 and 1 would not be the best formation?