

Launch



Students make arrays to help them reason about the number of factors for a given number.

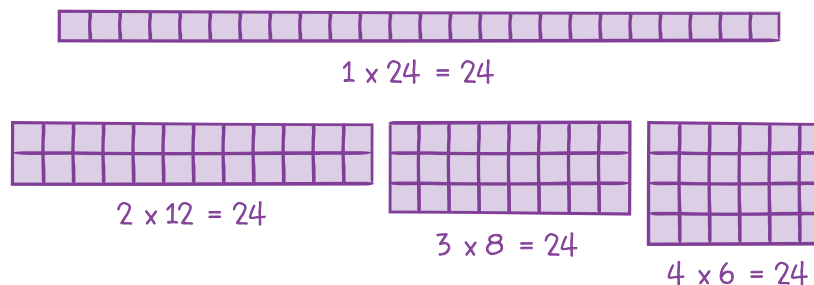
Write the equation $l \times w = 24$.

Invite students to turn and talk about numbers that make the equation true.

Direct students to work with a partner to draw as many arrays with an area of 24 square units as possible. As they create each array, have them sketch the array and record the equation that represents the area.

Provide students with 2 minutes to find all possible arrays, sketch the arrays, and record the equations.

After students record the equations, direct them to work with another group to compare their equations and to discuss the factors of 24 based on the equations they recorded.



Invite students to think-pair-share about how they know that they have found all the factors of 24.

We started with 1 and thought about whether we could make an array with 1 row. Then we tried 2 rows and 3 rows. We kept going like that until we got up to 6 rows. When we got to 6 rows, we realized it was the same factors we had already listed.

We thought about all the multiplication facts that have a product of 24.

Invite students to turn and talk about how they might find all the factors of a number such as 96.

Teacher Note

The Even or Uneven Grid digital interactive allows students to attempt making rectangular arrays with a given number of squares.

Consider allowing students to experiment with the tool individually or demonstrating the activity for the whole class.

Teacher Note

In grade 3, students find all possible side lengths of rectangles with a given area. They strategically check to see whether they have found all possible (whole number) side lengths. They apply the commutative and associative properties of multiplication to multiplication expressions representing the area of the rectangles and generate new expressions.

UDL: Action & Expression

Consider supporting students in expressing learning in flexible ways. Provide access to manipulatives such as disks or square tiles for students to arrange into arrays or grid paper for students to use to draw arrays.