

Lesson 19: Compare to 1

Standards Alignments

Addressing 5.NF.B.5.b

Building Towards 5.NF.B.5.b

Teacher-facing Learning Goals

- Explain what happens to a given fraction when multiplied by a fraction greater than or less than 1.

Student-facing Learning Goals

- Let's explain what happens when we multiply a fraction by a fraction greater than, less than, or equal to 1.

In previous lessons, students have compared the size of a product to the size of one factor by reasoning about the size of the other factor. They have done this using calculation, area diagrams, and number line diagrams. The goal of this lesson is to use the distributive property to explain why the comparisons work in all cases without calculating. The key observation is that a number greater than 1, such as $\frac{5}{4}$, can be written as $1 + \frac{1}{4}$ so multiplying by $\frac{5}{4}$ increases any number by $\frac{1}{4}$ of that number. In the same way multiplying by $\frac{3}{4}$ or $1 - \frac{1}{4}$ decreases any number by $\frac{1}{4}$ of that number.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Engagement (Activity 2)

English Learners

- MLR8 (Activity 1)

Instructional Routines

What Do You Know About ____? (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

During the last two lessons, students have noticed and explained patterns and generalizations about multiplying by numbers greater than, less than, and equal to 1. What are some ways that you honored student language while strategically incorporating more precise academic language?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Compare without Calculating

Standards Alignments

Addressing 5.NF.B.5.b

Student-facing Task Statement

1. Is $(1 - \frac{16}{33}) \times \frac{11}{14}$ greater than, equal to, or less than $\frac{11}{14}$? Explain or show your reasoning.
2. Is $\frac{49}{33} \times \frac{11}{14}$ greater than, equal to, or less than $\frac{11}{14}$? Explain or show your reasoning.

Student Responses

1. Less than $\frac{11}{14}$, because it's $\frac{11}{14}$ minus some amount.
2. Greater than $\frac{11}{14}$, because it's $\frac{11}{14}$ plus some amount as I can see by rewriting $\frac{49}{33}$ as $1 + \frac{16}{33}$.