

Journal: Integers and Fractions

Negative numbers and fractions change how math works compared to whole numbers. This is because dividing by a fraction is the same as multiplying by its reciprocal (the fraction flipped upside down).

Prompt: Explain why dividing a positive number by a proper fraction (a positive fraction less than 1) gives an answer bigger than the number you started with. Also explain why multiplying two negative integers gives a positive answer. Use a real-life example for each rule.

Where to start:

- Think of a case like sharing 6 pizzas into $\frac{1}{2}$ -pizza slices. Why does the answer (12) end up larger than 6?
- What does "the number of fraction-sized groups that fit into a quantity" mean, in your own words?
- Try a temperature or money example where two negatives multiply together. What happens, and why does that make sense?
- How is the " " symbol doing two different jobs when you write something like $5 \times (-3)$?

What a strong explanation includes:

- A real-life example that clearly shows why dividing by a proper fraction produces more, smaller groups, making the answer larger than the starting number.
- A sentence explaining that students apply operations to positive and negative numbers.
- Correct use of the words "groups," "fits into," or "size" when describing division by a fraction.
- A sentence that describes operations applied to positive and negative numbers.

Stretch:

Write one expression that mixes integers, fractions, and more than one operation, such as $6 \div \frac{1}{2} + (-3) \times \frac{1}{4} = 11.25$, and explain the order of operations you'd use to evaluate it.