



Fractions and Decimals

Grade 4 Mathematics: seeing numbers between whole numbers

What We Already Know About Fractions

- A fraction shows equal parts of one whole shape, length, or group.
- The numerator counts the parts, the denominator tells the total number of equal parts.
- Each fraction has its own spot on the number line.
- We can compare fractions using benchmarks of 0, $\frac{1}{2}$, and 1.

Place Value Grows Smaller: Decimals

Whole Numbers

In base ten, each place has one tenth the value of the place to its left. Moving left to right, values shrink by a factor of ten.

Decimal Parts

Decimal numbers are fractions with denominators of 10, 100, and so on. For example, 0.7 means 7 tenths, and 0.25 means 25 hundredths. We use a decimal point to separate wholes from parts.

Turning a Fraction Into an Equivalent Fraction

1

Start with a fraction

For example, $\frac{1}{2}$ shown as one shaded part out of two.

2

Partition each part the same way

Split every equal part into the same number of smaller pieces.

3

Multiply numerator and denominator

This partitioning is the same as multiplying top and bottom by the same number.

4

Name the new fraction

$\frac{1}{2}$ becomes $\frac{2}{4}$, then $\frac{4}{8}$, and so on, all on the same point on the number line.

5

Simplify if needed

Divide numerator and denominator by a common factor to reach simplest form.

Fractions, Decimals, and Percentages: Same Idea, Different Clothes

Fraction to Decimal

A fraction with denominator 10 or 100 can be written as a decimal number, and back again.

Decimal to Percentage

Multiply a decimal by 100 to get a percentage.

Percentage to Decimal

Divide a percentage by 100 to get a decimal.

One Percent

One percent means one hundredth of a whole.

Same Point, Same Number

Fractions and their equivalent decimals sit at the same spot on the number line.

Everyday Percentages

Percentages show up in sales, test scores, and sports statistics.

Bringing Fractions and Decimals Together

This year we learn that decimal numbers follow patterns in place value, with each place worth one tenth of the place to its left. We also learn that fractions can be renamed as equivalent fractions and connected to decimals and percentages, all describing the same part-whole relationship.

Can you think of a number you use every day, like a price or a score, that could be written as a fraction, a decimal, and a percentage?