

◆ Fractions, Decimals, and Percents

Overview of Skill Development

Fractions, Decimals, and Percents is designed to teach advanced fraction skills and decimal and percent skills. *Fractions, Decimals, and Percents* builds on *Basic Fractions*.

Adding and Subtracting Fractions with Unlike Denominators

Students make the bottom numbers the same by figuring out the fraction equal to 1 by which they must multiply each original fraction.

$$\frac{3}{4} \times \frac{3}{3} = \frac{9}{4 \times 3}$$
$$+ \frac{5}{3} \times \frac{4}{4} = \frac{\quad}{4 \times 3}$$

Reducing Fractions

Students learn to reduce a fraction by pulling out the largest possible fraction that equals 1.

$$\frac{12}{20} = \left(\frac{4}{4}\right) \times \frac{3}{5}$$

They learn to reduce an improper fraction by rewriting the fraction so that part of the numerator is a multiple of the denominator. They then write the multiple as a whole number.

$$\frac{32}{12} = \frac{24 + 8}{12} = 2\frac{8}{12}$$

Later, students put these reducing and rewriting skills together to change improper fractions to mixed fractions and reduce them.

$$\frac{24}{9} = 2\frac{6}{9}$$

$$\frac{6}{9} = \left(\frac{3}{3}\right) \times \frac{2}{3}$$

Dividing Fractions

Students learn to rewrite the problem as one fraction on top of the other fraction.

$$\frac{2}{3} \div \frac{4}{5} = \frac{\frac{2}{3}}{\frac{4}{5}}$$

Their goal is to get rid of the bottom fraction. The bottom fraction is changed into 1 by multiplying it by its inverse fraction.

$$\frac{\frac{2}{3}}{\frac{4}{5} \times \frac{5}{4}}$$

Then the top is multiplied by the same fraction so that the original fraction is multiplied by 1.

$$\frac{\frac{2}{3} \left(\frac{5}{4}\right)}{\frac{4}{5} \left(\frac{5}{4}\right)} = \frac{10}{12}$$

In Lesson 26, students learn the “invert and multiply” method.

$$\frac{2}{3} \div \frac{4}{5} = \frac{2}{3} \times \frac{5}{4} = \frac{10}{2}$$

Fraction Equivalencies

Because equivalent fractions are created by multiplying by fraction versions of 1, students can solve problems such as this.

$$\frac{2}{3} = \frac{10}{\square}$$

5 →

$$\frac{2}{3} = \frac{10}{\boxed{15}}$$

5 →

Decimal Notation

Students learn how to write fractions with denominators of 10, 100, and 1000 as decimals and how to write decimals as fractions.

Decimal Expansion

Students learn that adding zeros after the decimal point does not change the value of the decimal.

Operations

To add or subtract decimals, students make the same number of decimal places in each number and then line up the decimal points.

Students learn to multiply decimal numbers by 10, 100, and 1000 and learn the conventions of multiplying any two decimal numbers.

First students learn to divide a decimal number by a whole number. Then students learn to divide any number by a decimal or a mixed decimal.

Convert Fractions to Decimals to Percents

Students learn to change any fraction to a decimal and to handle any type of decimal-percent conversion.

Scope and Sequence Chart

Fractions, Decimals, and Percents

	1	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Fractions															
Multiply three numbers: $3(2 \times 5)$.															
Generate equivalent fractions.															
Identify the biggest common factor.															
Generate a series of fractions equal to 1.															
Multiply, add, or subtract fractions and mixed numbers.															
Add or subtract fractions with uncommon denominators.															
Divide fractions.															
Reduce improper fractions to whole or mixed numbers.															
Identify the largest fraction in a group of fractions.															
Complete fraction equivalency equations.															
Decimals and Percents															
Read decimals.															
Convert fractions and mixed numbers with denominators of 10 or 100 to decimals.															
Convert fractions to decimals and decimals to fractions with denominators of 10, 100, or 1000.															
Convert decimals to fractions.															
Expand decimals to show that adding zeros after a decimal does not change the value of the decimal.															
Multiply decimals.															
Add decimals.															
Divide decimals.															
Convert decimals to percents.															
Convert percents to decimals.															

Key: Teach 

Review 