

7th Grade Lesson 76

- I can simplify complex fractions.

A **complex fraction** is a fraction that contains one or more fractions in the numerator or denominator.

$$\frac{\frac{3}{5}}{\frac{2}{3}} \quad \frac{25\frac{2}{3}}{100} \quad \frac{15}{7\frac{1}{3}} \quad \frac{\frac{a}{b}}{\frac{b}{c}}$$

To simplify a complex fraction, multiply the fraction by a fraction name for 1 that makes the denominator 1.

$$\frac{\frac{3}{5}}{\frac{2}{3}} \times \frac{\frac{3}{2}}{\frac{3}{2}} = \frac{\frac{9}{10}}{1} = \frac{9}{10}$$

Another method for simplifying some complex fractions is to treat the fraction as a division problem.

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

$\frac{3}{5} \cdot \frac{3}{2} = \frac{9}{10}$
 $\frac{10}{15} > \frac{9}{15}$

$\frac{\text{dividend}}{\text{divisor}}$
 divisor = dividend
 quotient = 1
 divisor < dividend
 quotient > 1
 divisor > dividend
 quotient < 1

$$\frac{\frac{25\frac{2}{3}}{100}}{\frac{77}{3}} \cdot \frac{\frac{1}{100}}{\frac{1}{100}} = \frac{\frac{77}{300}}{1} = \frac{77}{300}$$

$$\frac{15}{7\frac{1}{3}} = \frac{15}{\frac{22}{3}} = 15 \div \frac{22}{3} = \frac{15}{1} \cdot \frac{3}{22} = \frac{45}{22}$$

Change $83\frac{1}{3}$ percent to a fraction and simplify.

$$83\frac{1}{3}\%$$

$$\frac{83\frac{1}{3}}{100} = \frac{\frac{250}{3}}{100} = \frac{250}{3} \div \frac{100}{1} = \frac{5}{3} \cdot \frac{1}{20} = \frac{5}{6}$$

Change $4\frac{1}{6}\%$ to a fraction and simplify.

$$\frac{4\frac{1}{6}}{100} = \frac{\frac{25}{6}}{100} = \frac{25}{6} \div 100 = \frac{25}{6} \cdot \frac{1}{100} = \frac{1}{24}$$

Assignment

PS 76 #9-15, 18, 21-24, 30