

# Multiplying and Dividing Fractions - Intermediate

## Objective 1: Find the Factors of a Number

The factors of a number are numbers that we can multiply together to get that number. They are numbers that divide evenly into the number.

### Divisibility Tests

A number is divisible by 2 if it is even.

A number is divisible by 3 if the digits add up to a number that is divisible by 3.

A number is divisible by 5 if the last digit is 0 or 5.

Divisible by 2	Divisible by 3	Divisible by 5

**Example:** Find the factors of 12

**Example:** Find the factors of 10

### Questions

Find the factors of the number.

1. 60

2. 48

## Objective 2: Reduce a Fraction to Lowest Terms

To reduce a fraction to lowest terms we divide the numerator and denominator by any like factors.

**Example:** Reduce  $\frac{8}{12}$  to lowest terms.

**Example:** Reduce  $\frac{9}{12}$  to lowest terms.

### More Examples:

### Questions

Reduce the fraction to lowest terms.

1.  $\frac{6}{18}$

2.  $\frac{12}{14}$

## Objective 3: Simplify an Improper Fraction

An improper fraction is a fraction where the numerator is greater than or equal to the denominator.

**Example:** Simplify  $\frac{5}{4}$ .

**Example:** Simplify  $\frac{19}{8}$ .

### More Examples:

## Questions

Simplify.

1.  $\frac{9}{4}$

2.  $\frac{17}{3}$

## Objective 4: Multiplying Fractions and Mixed Numbers

**Example:** What is 2 times  $\frac{3}{4}$ ?

**Example:** Multiply  $\frac{5}{7}$  times  $\frac{2}{3}$

**Example:** What is  $\frac{6}{8}$  times  $\frac{6}{15}$ ?

**Example:** Multiply  $6\frac{1}{8}$  times  $\frac{4}{7}$

**Example:** Multiply  $2\frac{3}{5}$  times  $1\frac{2}{3}$

**Example:** Multiply  $5\frac{3}{16}$  times  $5\frac{1}{3}$

## Questions

Multiply and simplify.

1.  $\frac{9}{10} \cdot \frac{7}{4}$

2.  $\frac{3}{7} \cdot 3$

3.  $\frac{4}{5} \cdot \frac{3}{8}$

4.  $2\frac{2}{5} \cdot \frac{5}{7}$

5.  $2\frac{3}{5} \cdot 3\frac{1}{3}$

## Objective 5: Dividing Fractions and Mixed Numbers

**Example:** Divide  $\frac{3}{4}$  by 2.

**Example:** Divide  $\frac{5}{6}$  by  $\frac{10}{11}$ .

**Example:** Divide  $3\frac{1}{6}$  by  $4\frac{2}{3}$ .

### Questions

Divide and simplify.

1.  $5 \div \frac{15}{4}$

2.  $\frac{17}{8} \div \frac{1}{4}$

3.  $\frac{25}{3} \div \frac{50}{9}$

4.  $4\frac{2}{3} \div 3$

5.  $2\frac{1}{2} \div 1\frac{1}{16}$

### Objective 6: Using a Scientific Calculator to Work with Fractions

**Example:** Reduce  $\frac{6}{8}$  to lowest terms using the calculator.

**Example:** Add  $\frac{1}{2} + \frac{1}{4}$  on the calculator.

**Example:** Multiply  $2\frac{1}{4}$  x  $5\frac{2}{3}$  on a calculator.

**Example:** Use a calculator to change  $4\frac{2}{3}$  into an improper fraction.

### Questions

Use a scientific calculator for each of the following problems.

No, these are not representative of problems you will come across in your classes. We are just trying to make sure that you know how to use the calculator. Don't do these problems by hand.

1. Reduce  $\frac{2310}{5544}$  to lowest terms.

2. Add and simplify:  $\frac{7}{17} + \frac{28}{33}$

3. Change  $\frac{467}{21}$  into a mixed number.