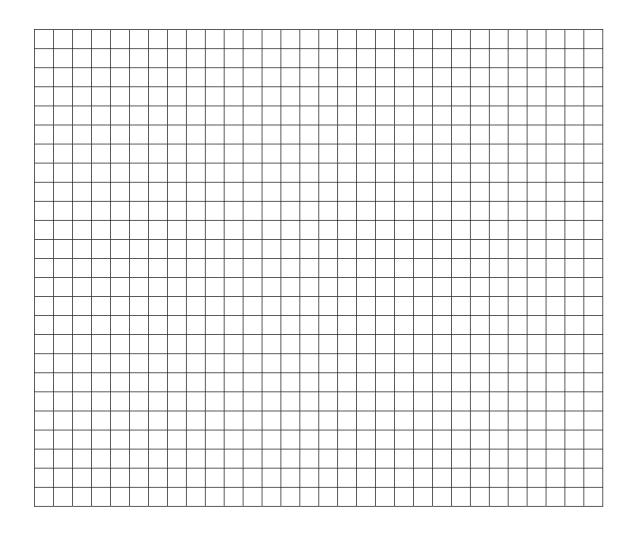**Lesson Objective:** Multiply and divide fractions and mixed numbers.

## Vocabulary Box

**greatest common factor (GCF)** — The largest whole number that is a factor of each of two or more whole numbers. Examples: The GCF of 2 and 8 is 2; the GCF of 6 and 9 is 3.

**reciprocal** — One of two numbers whose product is 1; two numbers are reciprocals of each other if their product equals 1. Examples: $\frac{1}{2}$ is the reciprocal of 2; $\frac{5}{6}$ is the reciprocal of $\frac{6}{5}$.

## Guided Practice

Directions: Complete the following practice problems. Your teacher will review the answers. Make sure you show all your work, and write your answers in simplest form.

**I.** Solve each of the following problems. If the answer is an improper fraction, convert it to a mixed number.

1. $\dfrac{2}{3} \times \dfrac{1}{4} =$ _____

2. $\dfrac{6}{14} \times \dfrac{7}{9} =$ _____

3. $4\dfrac{2}{3} \times 3\dfrac{1}{8} =$ _____

4. $5\dfrac{1}{2} \times 6\dfrac{3}{4} =$ _____

5. $\dfrac{2}{3} \div \dfrac{3}{4} =$ _____ $=$ _____

**II.** Solve the following problems. Multiply or divide the fractions and mixed numbers. If the answer is an improper fraction, change it to a mixed number.

1. $3\dfrac{2}{7} \times 8\dfrac{21}{28} =$ _____

2. $\dfrac{5}{9} \div \dfrac{2}{3} =$ _____

3. $2\dfrac{1}{3} \div 6\dfrac{7}{9} =$ _____

## Summary/Closure

**A. Vocabulary Words**

For each vocabulary term listed, write the definition in your own words and give an example.

greatest common factor:

reciprocal:

**B. Summarize What We Learned Today**

Write a sample problem of multiplying two mixed numbers. Then write a sample problem of dividing two fractions. Finally, solve each problem.

Explain how the processes of multiplying and dividing fractions are similar. Then explain how multiplying and dividing fractions are different.

**Lesson Objective:** Multiply and divide fractions and mixed numbers.

## Vocabulary Box

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## Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work.

**I.** Solve each multiplication or division problem. Make sure your answers are in simplest form.

1. $\frac{7}{8} \times \frac{4}{9} =$ _____

2. $\frac{3}{10} \times \frac{2}{15} =$ _____

3. $\frac{4}{11} \div \frac{2}{11} =$ _____

4. $\frac{20}{30} \div \frac{10}{15} =$ _____

**II.**   Solve each multiplication or division problem. If your answer is an improper fraction, change it to a mixed number.

1.  $4\dfrac{2}{3} \times 15\dfrac{3}{8} =$ _____

2.  $5\dfrac{3}{4} \div 3\dfrac{2}{3} =$ _____

**III.** Complete the following matching exercise by matching the fraction in the second column to its reciprocal in the third column. Write the correct letter in the space after each problem in column 1. Some of the answers have been simplified, and some answers may be used more than once.

| 1. _____ | $\dfrac{3}{8}$ | A. 2 |
| 2. _____ | $\dfrac{4}{8}$ | B. $\dfrac{7}{8}$ |
| 3. _____ | $\dfrac{8}{7}$ | C. $\dfrac{2}{9}$ |
| 4. _____ | $\dfrac{15}{3}$ | D. $\dfrac{8}{3}$ |
| 5. _____ | $\dfrac{9}{2}$ | E. $\dfrac{5}{2}$ |
| 6. _____ | $\dfrac{1}{2}$ | F. $\dfrac{1}{5}$ |
| 7. _____ | $\dfrac{6}{2}$ | G. $\dfrac{1}{3}$ |
| 8. _____ | $\dfrac{9}{36}$ | H. $\dfrac{7}{3}$ |
| 9. _____ | $\dfrac{2}{5}$ | I. $\dfrac{1}{8}$ |
| 10. _____ | $\dfrac{3}{7}$ | J.  answer is not listed |

**BONUS?**

1. Multiply $2\frac{1}{3} \times 5 = $ _____

2. Divide $3 \div 2\frac{3}{8} = $ _____

3. Multiply $12\frac{14}{20} \times 15\frac{3}{16} = $ _____

## Problem Solving

Your friend is having a party and asks that you bring your special snack mix. You need to bring enough to feed 12 people. Use the recipe card below to answer the questions so that you can make the right amount of your tasty treat!

---

**Yummy Snack Mix**
**Serves 6**

**Combine in a large bowl:**

$2\frac{1}{2}$ cups popcorn              2 cups pretzels

$1\frac{3}{4}$ cups nacho tortilla chips      $1\frac{1}{2}$ cups corn chips

---

1) How much of each ingredient do you need in order to have enough for everyone at the party? Be sure to show all your work.

Popcorn: _____          Pretzels: _____

Tortilla chips: _____          Corn chips: _____

2) You look in the kitchen drawer, and you have only a 1/4-cup measuring cup. How many times will you need to fill this measuring cup in order to measure out enough corn chips?

3)    How many times will you need to fill the measuring cup in order to measure out enough tortilla chips?

4) Altogether, you have $15\frac{1}{2}$ cups of your snack mix. If the 12 people at the party get equal servings, how large will each serving be?

**What I Know**

1. $\dfrac{7}{9} \times 2\dfrac{8}{12} =$

2. $\dfrac{3}{5} \div \dfrac{4}{25} =$

3. How many times does $\dfrac{1}{8}$ go into $3\dfrac{1}{2}$?

**Lesson Objective:** Identify the base and the exponent of a given numerical expression and calculate its value.

# Vocabulary Box

**base** — The number that indicates the factor in a power.  Example: 12 is the base of the power $12^5$.

**exponent** — The number that indicates the number of times the base is used as a factor in a power.  Example: 5 is the exponent of the power $12^5$.

**square** — The second power of a number; an exponent of 2.  Example: $7^2$ is read as seven squared.

**cube** — The third power of a number; an exponent of 3.  Example: $15^3$ is read as 15 cubed.

## Guided Practice

Directions: Complete the following practice problems. Your teacher will review the answers. Make sure you show all your work.

**I.** Write each expression as a multiplication problem with repeated factors, then solve. You may work with a partner.

1.  $3^4$ = _____×_____×_____×_____ = _____

2.  $5^3$ = _____×_____×_____ = _____

3.  $2^6$ = _____×_____×_____×_____×_____×_____ = _____

4.  $10^4$ = _____×_____×_____×_____=_____

**II.** Solve the following problems. First write the expression as a multiplication problem with repeated factors, then solve. Please work independently.

1. $9^5 =$                          $=$ _____

2. $4^4 =$                          $=$ _____

3. $8^2 =$                          $=$ _____

## Summary/Closure

### A. Vocabulary Words
For each vocabulary term listed, write the definition and give an example.

base of a power —

exponent of a power —

square —

cube —

### B. Summarize What We Learned Today
Write a numerical expression that uses a base and an exponent. Identify the base and the exponent, and calculate the value of the expression. Then explain in complete sentences what these numbers mean and how they are related.