

Multiplying and Dividing Fractions

How to Multiply Fractions

- DO NOT need common denominator
- multiply straight across for both numerators and denominators
- simplify if necessary

$$\frac{1}{5} \cdot \frac{3}{4} = \frac{3}{20}$$

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$

Multiplying Practice

$$3\frac{4}{9} \times \frac{2}{6} = \frac{4}{18}$$

$$\left(-\frac{1}{8}\right) \times -\frac{5}{6} = \frac{5}{48}$$

$$-\frac{1}{3} \times \frac{8}{7} = -\frac{8}{21}$$

How to Multiply Mixed Numbers

- * convert all mixed numbers to improper fractions
- write any whole number over one
- multiply across
- simplify if necessary

$$3\frac{1}{1} \cdot \frac{5}{4} = \frac{15}{2}$$

$$6 \times 1\frac{1}{4}$$

More Multiplying Practice

$$5\frac{1}{2} \times 1\frac{2}{3}$$

$$\frac{55}{6} \cdot \frac{11}{3} = \frac{55}{3}$$

$$-\frac{3}{16} \times 4\frac{2}{3}$$

$$-\frac{7}{8} \cdot \frac{14}{3} = -\frac{7}{3}$$

$$4\frac{1}{8} \cdot \frac{1}{1}$$

$$-2\frac{1}{8} \times -10 = \frac{85}{4}$$

What is a RECIPROCAL?

- a RECIPROCAL is the inverse of a fraction
- the numerator and denominator swap locations

$$\frac{3}{4} \quad \frac{4}{3} \quad \frac{11}{2} \quad \frac{2}{11} \quad \frac{9}{10} \quad \frac{10}{9} \quad 7\frac{1}{7}$$

How to DIVIDE fractions

- keep the first fraction the same
- Change division to multiplication
- Take reciprocal of second fraction
- Multiply across
- Simplify if possible

$$\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \cdot \frac{3}{2} = \frac{6}{5}$$

Dividing Practice

$$-1\frac{7}{8} \div -8 = \frac{15}{8} \cdot \frac{1}{8} = \frac{15}{64}$$

$$\frac{3}{2} \div \frac{11}{2} = \frac{3}{2} \cdot \frac{2}{11} = \frac{3}{11}$$

$$4\frac{1}{6} \div -2\frac{2}{3} = \frac{25}{6} \cdot \frac{3}{8} = \frac{25}{16}$$

$$-\frac{3}{8} \div -\frac{1}{12} = \frac{3}{8} \cdot 12 = \frac{36}{8} = \frac{9}{2} = 4\frac{1}{2}$$

$$-\frac{3}{8} \div -12 = \frac{3}{8} \cdot \frac{1}{12} = \frac{3}{96} = \frac{1}{32}$$

Multiplying & Dividing Applications

An encyclopedia has 30 volumes. The total weight of these volumes is $71\frac{1}{4}$ pounds. What is the weight of one encyclopedia?

Multiplying & Dividing Applications

About $\frac{4}{5}$ of the weight of a pineapple is water. About how much water would you expect to find in $2\frac{1}{2}$ pounds of pineapple?

Try on Your Own!

The students in Ms. Damitz's class were given a prize for collecting the most toys for the school toy drive. Their prize was $16\frac{1}{2}$ gallons of ice cream. If the students ate $\frac{1}{3}$ of this ice cream before going to lunch, how many gallons of ice cream did they eat?

At every practice, every player gets $\frac{1}{5}$ of a bottle of Refresh, a sports drink. For how many days will $2\frac{3}{5}$ bottles of the sports drink last?