

4.3 Multiplying And Dividing Fractions

* Multiplying Fractions

1. Convert mixed number to improper fraction
2. Reduce
3. Multiply the numerators and multiply the denominators

Ex 1. Multiply.

a. $\frac{5}{12} \times \left(-\frac{42}{65}\right)$

b. $1\frac{7}{8} \times \frac{4}{15}$

c. $\left(-2\frac{5}{8}\right)\left(-3\frac{2}{5}\right)$

d. $-\frac{16}{33} \times \left(-\frac{55}{72}\right) \times \left(-\frac{45}{35}\right)$

e. $5\frac{5}{16} \times 5\frac{1}{3} \left(-2\frac{2}{5}\right)$

f. $-2\frac{2}{3} \cdot \frac{15}{22} \times \left(-9\frac{9}{10}\right)$

g. $\frac{16x^2}{3y^3} \times \frac{9y}{24x^2}$

Def. The **reciprocal of a fraction** is the fraction with the numerator and denominator interchange.

Ex 2. Reciprocal of $\frac{7}{11}$ is _____.

Idea

Ex 3. 8 **divided** by 2 is 4.

$$8 \div 2 = 4$$

Ex 4. 8 **times** the **reciprocal** of 2 is 4.

$$8 \times \frac{1}{2} = 4$$

*** Dividing Fractions**

1. Convert mixed number to improper fraction
2. Change " \div " symbol to " \times " and reciprocate the divisor
3. Reduce
4. Multiply the numerators and multiply the denominators

Ex 5. Divide.

a. $\frac{5}{8} \div \frac{4}{9}$

b. $-1\frac{13}{15} \div 4\frac{1}{5}$

c. $\left(-4\frac{3}{8}\right) \div (-28)$

d. $\frac{2}{5} \div 0$

e. $-2\frac{3}{4} \div \left(-1\frac{5}{7}\right) \div \left(-2\frac{6}{7}\right)$

f. $1\frac{13}{15} \div (-7) \div 4\frac{4}{5}$

Ex 6. An electrician earns \$206 for each day worked. What are the electrician's earnings for working $4\frac{1}{2}$ days?

Ex 7. Over the last 10 years, a house increased in value by $2\frac{1}{2}$ times. The price of the house 10 years ago was \$170000. What is the value of the house today?

Ex 8. A car used $15\frac{1}{2}$ gallons of gasoline on a 310-mile trip. How many miles can this car travel on 1 gallon of gasoline?

Ex 9. A factory worker can assemble a product in $7\frac{1}{2}$ minutes. How many products can the worker assemble in 1 hour?