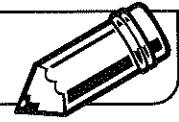


LESSON
8•7

Simplifying Fraction Factors



An Algorithm for Fraction Multiplication

$$\frac{a}{b} * \frac{c}{d} = \frac{a * c}{b * d}$$

The denominator of the product is the product of the factor denominators, and the numerator of the product is the product of the factor numerators.

The commutative property lets us write $\frac{a * c}{b * d}$ as $\frac{c * a}{d * b}$. Study the examples.

Example 1: $\frac{7}{8} * \frac{16}{21} = \frac{7 * 16}{8 * 21} = \frac{112}{168}$, $\frac{112}{168} \div \frac{8}{8} = \frac{14}{21}$, or $\frac{2}{3}$

Example 2: $\frac{7}{8} * \frac{16}{21} = \frac{7 * 16}{8 * 21} = \frac{16}{8} * \frac{7}{21} = \frac{2}{1} * \frac{1}{3} = \frac{2 * 1}{1 * 3} = \frac{2}{3}$

1. Describe the similarities and differences between Examples 1 and 2.

Example 3: $\frac{\overset{1}{\cancel{7}}}{\underset{1}{\cancel{8}}} * \frac{\overset{2}{\cancel{16}}}{\underset{3}{\cancel{21}}} = \frac{1 * 2}{1 * 3} = \frac{2}{3}$

2. Describe the similarities and differences between Examples 2 and 3.

Use what you have discovered to solve the following problems. Show your work.

3. $\frac{14}{60} * \frac{12}{21} =$ _____

4. $\frac{36}{88} * \frac{33}{72} =$ _____

5. $\frac{25}{54} * \frac{36}{45} =$ _____