

Name: _____

Date: _____

MF2P: Foundations of Mathematics 10

Numeracy and Algebra

Multiplying and Dividing Fractions

1. Multiplying Fractions

Multiply the numerators and the denominators.

$$\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$$

An integer can be written as a fraction with a denominator of 1.

$$\frac{2}{7} \times 3 = \frac{2}{7} \times \frac{3}{1} = \frac{2 \times 3}{7 \times 1} = \frac{6}{7}$$

2. Dividing Fractions

Take the **reciprocal** of the second fraction, and treat as multiplication. $\frac{5}{9} \div \frac{3}{4} = \frac{5}{9} \times \frac{4}{3} = \frac{5 \times 4}{9 \times 3} = \frac{20}{27}$

3. Simplifying Fractions

Fractions should always be reduced to lowest terms.

$$\frac{4}{5} \times \frac{1}{6} = \frac{4 \times 1}{5 \times 6} = \frac{4 \div 2}{30 \div 2} = \frac{2}{15}$$

Try to reduce before mult/div, to make values smaller.

$$\frac{4}{5} \times \frac{1}{6} = \frac{4 \div 2}{5} \times \frac{1}{6 \div 2} = \frac{2}{5} \times \frac{1}{3} = \frac{2 \times 1}{5 \times 3} = \frac{2}{15}$$

4. Examples

A. Evaluate $\frac{3}{7} \times \frac{5}{2}$.

Nothing can be reduced beforehand, so multiply the numerators and the denominators.

$$\frac{3}{7} \times \frac{5}{2} = \frac{3 \times 5}{7 \times 2} = \frac{15}{14}$$

B. Evaluate $\frac{6}{35} \times \frac{14}{3}$.

The GCF of 6 and 35 is 1, and the GCF of 14 and 35 is 7. Simplify first.

$$\frac{6}{35} \times \frac{14}{3} = \frac{6 \div 3}{35 \div 7} \times \frac{14 \div 7}{3 \div 3} = \frac{2}{5} \times \frac{2}{1}$$

Multiply the numerators and the denominators.

$$\frac{2}{5} \times \frac{2}{1} = \frac{2 \times 2}{5 \times 1} = \frac{4}{5}$$

C. Evaluate $12 \div \frac{8}{9}$.

Remember that an integer can be written as a fraction with a denominator of 1.

$$12 \div \frac{8}{9} = \frac{12}{1} \div \frac{8}{9}$$

First, rewrite the expression as a multiplication by taking the reciprocal of the second fraction.

$$\frac{12}{1} \div \frac{8}{9} = \frac{12}{1} \times \frac{9}{8}$$

The GCF of 12 and 8 is 4, so simplify.

$$\frac{12}{1} \times \frac{9}{8} = \frac{12 \div 4}{1} \times \frac{9}{8 \div 4} = \frac{3}{1} \times \frac{9}{2}$$

Multiply the numerators and the denominators.

$$\frac{3}{1} \times \frac{9}{2} = \frac{3 \times 9}{1 \times 2} = \frac{27}{2}$$