

Fractions

Fractions Terminology

Numerator: top number

Denominator: bottom number (Think: the Denominator is Down.)

Example:

$\underline{3}$ → Numerator

4 → Denominator

To multiply two fractions

1. Multiply the numerators.
2. Multiply the denominators.
3. Make sure the product of the numerators is above the product of the denominators.
4. Simplify the fraction.

Example:

Multiply $\frac{5}{6}$ and $\frac{3}{4}$ ($\frac{5}{6} \times \frac{3}{4}$)

1. Multiply the numerators. ($5 \times 3 = 15$)
2. Multiply the denominators. ($6 \times 4 = 24$)
3. Make sure the product of the numerators is above the product of the denominators. ($\frac{5}{6} \times \frac{3}{4} = \frac{5 \times 3}{6 \times 4} = \frac{15}{24}$)
4. Simplify the fraction.

$$\frac{15}{24} = \frac{5}{8}$$

To multiply a fraction and a whole number

1. Convert the whole number to a fraction.
2. Multiply the numerators.
3. Multiply the denominators.
4. Make sure the product of the numerators is above the product of the denominators.
5. Simplify the fraction.

Example:

Multiply 3 and $\frac{3}{4}$ ($3 \times \frac{3}{4}$)

1. Convert the whole number to a fraction. ($3 = \frac{3}{1}$)
2. Multiply the numerators. ($3 \times 3 = 9$)
3. Multiply the denominators. ($1 \times 4 = 4$)

Fractions

Multiplying a fraction and a whole number – continued

4. Make sure the product of the numerators is above the product of the

denominators. $(\frac{3}{1} \times \frac{3}{4} = \frac{3 \times 3}{1 \times 4} = \frac{9}{4})$

5. Simplify the fraction. $(\frac{9}{4} = 2\frac{1}{4})$

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To divide two fractions

1. Rewrite the division as a multiplication by the reciprocal of the divisor.
2. Multiply the numerators.
3. Multiply the denominators.
4. Make sure the product of the numerators is above the product of the denominators.
5. Simplify the fraction.

Example:

Divide $\frac{5}{8}$ by $\frac{1}{4}$ ($\frac{5}{8} \div \frac{1}{4}$)

1. Invert the second number (the number you are dividing by). ($\frac{5}{8} \times \frac{1}{4}$)
2. Multiply the numerators. ($5 \times 4 = 20$)
3. Multiply the denominators. ($8 \times 1 = 8$)
4. Make sure the product of the numerators is above the product of the denominators:

$$\frac{5}{8} \times \frac{4}{1} = \frac{5 \times 4}{8 \times 1} = \frac{20}{8}$$

5. Simplify the fraction. ($\frac{20}{8} = \frac{5}{2} = 2\frac{1}{2}$)

To divide a whole number by a fraction

1. Invert the second number (the number you are dividing by).
2. Multiply the whole number and the numerator.
3. Place the product of the whole number and the numerator over the denominator.
4. Simplify the fraction.

Example:

Divide 8 by $\frac{2}{3}$ ($8 \div \frac{2}{3}$)

1. Invert the second number (the number you are dividing by). ($8 \times \frac{3}{2}$)
2. Multiply the whole number and the numerator. ($8 \times 3 = 24$)
3. Place the product of the whole number and the numerator over the denominator. ($\frac{24}{2}$)
4. Simplify the fraction. ($\frac{24}{2} = \frac{12}{1} = 12$)