Multiplying and Dividing Fractions- Basics

Objective 1: Find the Factors of a Number

The factors of a number are numbers that we can multiply together to get that number. They are numbers that divide evenly into the number.

> **Divisibility Tests**
> A number is divisible by 2 if it is even.
> A number is divisible by 3 if the digits add up to a number that is divisible by 3.
> A number is divisible by 5 if the last digit is 0 or 5.

Divisible by 2	Divisible by 3	Divisible by 5

Example: Find the factors of 12

Example: Find the factors of 10

Find the factors of the number.

1. **60**

2. **48**

Objective 2: Reduce a Fraction to Lowest Terms

To reduce a fraction to lowest terms we divide the numerator and denominator by any like factors.

Example: Reduce $\frac{8}{12}$ to lowest terms.

Example: Reduce $\frac{9}{12}$ to lowest terms.
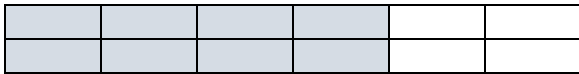
More Examples:

Reduce the fraction to lowest terms.

1. $\dfrac{6}{18}$

2. $\dfrac{12}{14}$

Objective 3: Multiplying Fractions

Example: Use the diagram to answer the following:

a) What fraction is shaded?

b) What is $\frac{1}{2}$ of $\frac{2}{3}$?

Note: When we multiply by a proper fraction, the answer is **less than** the original number.

Multiplying Fractions
1. Cross cancel
2. Multiply across

Example: Multiply $\frac{3}{15} \cdot \frac{20}{21}$

Answer:

Example: Multiply $\frac{2}{9} \cdot \frac{3}{10} \cdot \frac{4}{11} \cdot \frac{5}{12}$.

Answer:

Multiply the following fractions:

1) $\frac{21}{8} \cdot \frac{4}{7}$

2) $\frac{75}{36} \cdot \frac{54}{35}$

Objective 4: Dividing Fractions

Reciprocals

- For a fraction: Interchange the numerator and the denominator.

    For example, the reciprocal of $\frac{3}{10}$ is $\frac{10}{3}$

Example: Use the following diagram to answer the following:

a) What fraction is shaded?

b) What is $\frac{1}{2}$ of $\frac{1}{2}$?

Note: Dividing by 2 is the same as multiplying by $\frac{1}{2}$

Dividing Fractions

➢ Multiply the first fraction by the reciprocal of the second fraction.

Example: Divide $\frac{2}{15} \div \frac{1}{5}$

Answer:

Divide the following fractions:

1) $\frac{1}{20} \div \frac{7}{16}$

2) $\frac{30}{7} \div \frac{64}{21}$