Looking Back

To compare fractions, we change them to **like fractions**. Like fractions are fractions with a common denominator. For like fractions, the greater the numerator, the greater the fraction.

Which is greater, $\frac{4}{5}$ or $\frac{5}{6}$?

To change the fractions to like fractions, we find equivalent fractions which have the same denominator.

$$\frac{4}{5} \times \frac{6}{6} = \frac{24}{30}$$

To change to like fractions, we find the common multiple of the denominators. 30 is a common multiple of 5 and 6.

$$\frac{5}{6} \times \frac{5}{5} = \frac{25}{30}$$

$\frac{25}{30}$ is greater than $\frac{24}{30}$.

So, $\frac{5}{6}$ is greater than $\frac{4}{5}$. 
Fractions and Division

Find the value of $34 \div 8$.

**Method 1:**

$$34 \div 8 = 4 \frac{2}{8} = 4 \frac{1}{4}$$

**Method 2:**

$$34 \div 8 = \frac{34}{8} = \frac{17}{4} = \frac{16}{4} + \frac{1}{4} = 4 \frac{1}{4}$$

Addition and Subtraction of Unlike Fractions

**Unlike fractions** are fractions which do not have the same denominator. When adding or subtracting unlike fractions, we change them to like fractions first.

1. Add $\frac{2}{3}$ and $\frac{3}{10}$.

$$\frac{2}{3} + \frac{3}{10} = \frac{20}{30} + \frac{9}{30} = \frac{29}{30}$$

$30$ is a common multiple of $3$ and $10$. 

Reduce $\frac{34}{8}$ to its simplest form.

$$8 \overline{) 34} \quad \frac{4}{32} \quad \frac{3}{2}$$
2. Subtract \( \frac{2}{3} \) from \( \frac{4}{5} \).

\[
\frac{4}{5} - \frac{2}{3} = \frac{12}{15} - \frac{10}{15} = \frac{2}{15}
\]

Addition and Subtraction of Mixed Numbers

When adding or subtracting mixed numbers, we add or subtract the whole numbers first and then the fractions.

1. Add \( 3\frac{1}{4} \) and \( 2\frac{3}{8} \).

\[
3\frac{1}{4} + 2\frac{3}{8} = \frac{5}{4} + \frac{3}{8} = \frac{5}{8} + \frac{3}{8} = 5\frac{5}{8}
\]

15 is a common multiple of 5 and 3.
2. Subtract $1\frac{5}{6}$ from $4\frac{3}{4}$.

$$4\frac{3}{4} - 1\frac{5}{6} = 3\frac{3}{4} - \frac{5}{6}$$

$$= 3\frac{9}{12} - \frac{10}{12}$$

$$= 2\frac{21}{12} - \frac{10}{12}$$

$$= 2\frac{11}{12}$$

Product of a Fraction and a Whole Number

When multiplying a fraction by a whole number, we multiply the whole number by the numerator of the fraction.

1. Multiply 9 by $\frac{3}{10}$.

$$9 \times \frac{3}{10} = \frac{27}{10}$$

$$= 2\frac{7}{10}$$
2. Find \( \frac{3}{5} \) of a liter in milliliters.

\[
\frac{3}{5} \text{ of a liter} = \frac{3}{5} \times 1 \text{ L} = \frac{3}{5} \times 1,000 \text{ ml} = \frac{3 \times 1,000}{5} = \frac{3,000}{5} = 600 \text{ ml}
\]

3. Find \( \frac{3}{4} \) of a meter in centimeters.

\[
\frac{3}{4} \text{ of a meter} = \frac{3}{4} \times 1 \text{ m} = \frac{3}{4} \times 100 \text{ cm} = \frac{3 \times 100}{4} = \frac{300}{4} = 75 \text{ cm}
\]
Word Problems

There are 42 children in a class. \( \frac{1}{6} \) of them wear glasses. How many children do not wear glasses?

Method 1:
\[
1 - \frac{1}{6} = \frac{5}{6}
\]

First, I find what fraction of the children do not wear glasses.

\[
\frac{5}{6} \text{ of the children do not wear glasses.}
\]

\[
\frac{5}{6} \times 42 = \frac{5 \times 42}{6} = 35
\]

35 children do not wear glasses.

Method 2:
Number of children who wear glasses = \( \frac{1 \times 42}{6} \)

\[
= 7
\]

Number of children who do not wear glasses = \( 42 - 7 \)

\[
= 35
\]

Method 3:

6 units = 42 children
1 unit = 7 children

Number of children who do not wear glasses = 5 units

\[
= 5 \times 7
\]

\[
= 35
\]