# **Comparing and Ordering of Fractions**

## **Comparing and Ordering of Fractions**

To compare fractions means to check which one is greater, smaller, or if they are equal.

#### **Examples:**

Compare  $\frac{2}{5}$  and  $\frac{3}{5}$ 

Same denominator  $\rightarrow$  Compare numerators

$$2 < 3 \Rightarrow \frac{2}{5} < \frac{3}{5}$$
  
Compare  $\frac{3}{4}$  and  $\frac{5}{6}$ 

Different denominators  $\rightarrow$  Convert to like fractions

$$\frac{3}{4} = \frac{9}{12}, \frac{5}{6} = \frac{10}{12}$$
$$\frac{9}{12} < \frac{10}{12} \Rightarrow \frac{3}{4} < \frac{5}{6}$$

## Ways to Compare Fractions:

## **1. Like Denominators**

**Compare numerators** 

**Example:** 
$$\frac{1}{7} < \frac{5}{7}$$

## 2. Like Numerators

Smaller denominator = greater fraction

**Example:** 
$$\frac{2}{3} > \frac{2}{5}$$

# 3. Cross Multiplication Method (for unlike fractions)

Compare  $\frac{a}{b}$  and  $\frac{c}{d}$  by multiplying:

 $\mathsf{a} \times \mathsf{d}$  and  $\mathsf{b} \times \mathsf{c}$ 

The bigger result = bigger fraction

Example: Compare  $\frac{3}{5}$  and  $\frac{4}{7}$   $3 \times 7 = 21, 4 \times 5 = 20 \Rightarrow 21 > 20$  $\frac{3}{5} > \frac{4}{7}$ 

## **Ordering Fractions:**

• Ascending Order: Smallest to biggest

Example:  $\frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}$ 

• Descending Order: Biggest to smallest

**Example:**  $\frac{3}{4}, \frac{2}{4}, \frac{1}{4}$ 

## **Properties of Comparing and Ordering Fractions**

- i. When denominators are same, compare numerators
- ii. When numerators are same, the smaller denominator is bigger
- iii. For unlike fractions, convert to like fractions or use cross multiplication
- iv. Fractions can be arranged in ascending or descending order
- v. Helps in ranking, decision making, and understanding quantity comparison

#### **Summary:**

- To compare: Check who is bigger or smaller
- Use like denominators or cross multiplication
- Order in ascending (small to big) or descending (big to small)

**Example:**  $\frac{1}{3} < \frac{2}{3} < \frac{3}{3}$