

Fractions- Part 4

Comparison of fractions

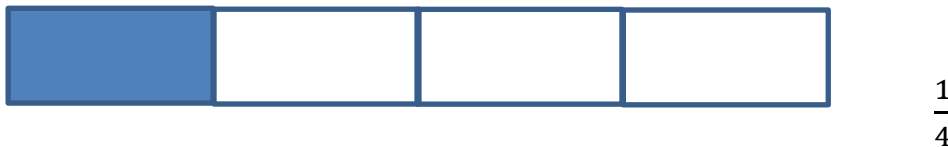
When doing comparison of fractions the following symbols can be used;

$>$ *Less Than*

$<$ *Greater than*

$=$ *Equal*

1. Comparison of unit fractions



According to the figures given above it is clear that $\frac{1}{2}$ is greater than

$\frac{1}{3}$ ($\frac{1}{2} > \frac{1}{3}$) and $\frac{1}{3}$ is greater than $\frac{1}{4}$ ($\frac{1}{3} > \frac{1}{4}$)

In this manner out of two unit fractions the larger fraction is the fraction with the smaller denominator.

Ex: $\frac{1}{5} < \frac{1}{4}$, $\frac{1}{8} > \frac{1}{12}$, $\frac{1}{9} > \frac{1}{100}$, $\frac{1}{2} > \frac{1}{10}$

2. Comparison of fractions having the same numerator.

Compare the fractions $\frac{2}{5}$ and $\frac{2}{7}$

You have learnt that $\frac{2}{5}$ is two of $\frac{1}{5}$ s and $\frac{2}{7}$ is two of $\frac{1}{7}$ s.

But we know that $\frac{1}{5} > \frac{1}{7}$; therefore $\frac{2}{5} > \frac{2}{7}$

In this manner out of two fractions having the same numerator, the larger fraction is the fraction with the small denominator.

Ex: $\frac{5}{7} > \frac{5}{9}$, $\frac{2}{4} > \frac{2}{7}$, $\frac{7}{9} > \frac{7}{12}$

3. Comparison of fractions having the same denominator.



$$\frac{1}{3}$$



$$\frac{2}{3}$$

Therefore $\frac{1}{3} < \frac{2}{3}$ or $\frac{2}{3} > \frac{1}{3}$

In this manner out of two fractions having the same denominator, the larger fraction is the fraction with larger numerator.

Ex: $\frac{1}{6} < \frac{2}{6} < \frac{3}{6} < \frac{4}{6} < \frac{5}{6} < \frac{6}{6}$ or 1

4. More on Comparison of fractions

Consider $\frac{1}{2}$ and $\frac{5}{6}$

$\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$ (using equivalent fractions)

Now compare $\frac{3}{6}$ and $\frac{5}{6}$

$\frac{3}{6} < \frac{5}{6}$

Therefore ; $\frac{1}{2} < \frac{5}{6}$

In this manner when numerators / denominators are not equal equivalent fractions should be used.

Ex: $\frac{5}{12}$ and $\frac{3}{4}$

$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

$\frac{5}{12} < \frac{9}{12}$

Therefore ; $\frac{5}{12} < \frac{3}{4}$

Students now you can complete the exercise 9.4

Addition and subtraction of fractions

1. When denominators are equal ;

Numerators should be added or subtracted with the same denominator as given below.

$$\text{a. } \frac{1}{8} + \frac{2}{8} = \frac{1+2}{8} = \frac{3}{8}$$

$$\text{b. } \frac{4}{5} - \frac{2}{5} = \frac{4-2}{5} = \frac{2}{5}$$

$$\text{c. } \frac{2}{15} + \frac{8}{15} = \frac{2+8}{15} = \frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3}$$

$$\text{d. } \frac{7}{12} - \frac{3}{12} = \frac{7-3}{12} = \frac{4}{12} = \frac{4 \div 4}{12 \div 4} = \frac{1}{3}$$

2. When denominators are not equal ;

Here we have to convert the given fractions into fractions with equal denominators using equivalent fractions.

$$\text{a. } \frac{3}{4} + \frac{1}{8} \rightarrow \rightarrow \rightarrow \frac{3 \times 2}{4 \times 2} + \frac{1}{8}$$

$$= \frac{6}{8} + \frac{1}{8}$$

$$= \frac{7}{8}$$

$$\text{b. } \frac{2}{9} + \frac{2}{3} \rightarrow \rightarrow \rightarrow \frac{2}{9} + \frac{2 \times 3}{3 \times 3}$$

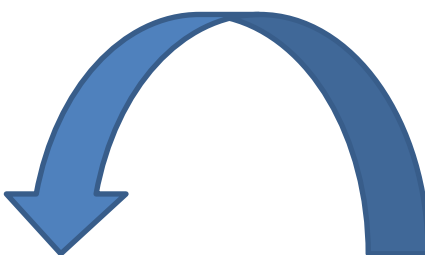
$$= \frac{2}{9} + \frac{6}{9}$$

$$= \frac{8}{9}$$

c. $\frac{5}{6} - \frac{1}{3} \rightarrow \rightarrow \rightarrow \frac{5}{6} - \frac{1 \times 2}{3 \times 2}$

$$= \frac{5}{6} - \frac{2}{6}$$

$$= \frac{3}{6}$$

$$= \frac{3 \div 3}{6 \div 3} = \frac{1}{2} \text{ this is the simplest form of the answer}$$


d. $\frac{9}{10} - \frac{1}{2} \rightarrow \rightarrow \rightarrow \frac{9}{10} - \frac{1 \times 5}{2 \times 5}$

$$= \frac{9}{10} - \frac{5}{10}$$

$$= \frac{4}{10}$$

$$= \frac{4 \div 2}{10 \div 2} = \frac{2}{5} \text{ (simplest form)}$$

Now you can complete 8.5 & 8.6

