**Class: 4**
**Subject : Mathematics**
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**Date:/7/2020**

**Chapter: Eight**

# Fractions

**Lecture no-03**

**Reducing a fraction :** Dividing the numerator and denominator by the same number in order to make a fraction with a smaller denominator is called reducing a fraction.

- **How to reduce a fraction?**

- To reduce a fraction, divide both the numerator and the denominator by a common factor.

Such as: $\frac{15}{18} \overset{\div 3}{=} \frac{5}{6}$ $\longrightarrow$ $\frac{\cancel{15}^{\,5}}{\cancel{18}_{\,6}} = \frac{5}{6}$

**EXAMPLE 1: Reduce** $\frac{16}{20}$.

**Example 2: Reduce the following fractions to the lowest term.**

**(1)** $\frac{4}{10}$ **(2)** $\frac{12}{15}$ **(3)** $\frac{9}{27}$ **(4)** $\frac{24}{36}$ **(5)** $\frac{28}{42}$ **(6)** $\frac{40}{60}$

**Exercise (1)**

**4. Reduce the following fractions to the lowest term.**

**(1)** $\frac{6}{12}$ **(2)** $\frac{3}{21}$ **(3)** $\frac{9}{36}$ **(4)** $\frac{16}{48}$ **(5)** $\frac{8}{12}$ **(6)** $\frac{9}{12}$

**(7)** $\frac{20}{25}$ **(8)** $\frac{32}{36}$ **(9)** $\frac{18}{30}$ **(10)** $\frac{16}{28}$ **(11)** $\frac{28}{49}$ **(12)** $\frac{24}{40}$

**8.6 Finding the common denominator**

- **How to find the common denominator?**

- **Find a common multiple of the denominators.**
- **Convert fraction so that they have the same denominator. Here, we can use the least common multiples (L.C.M) of the original denominators.**

**Example :**

**Convert** $\frac{3}{5}$ **and** $\frac{2}{3}$ **into fractions with common denominators.**

**Solution:**

**Step 1: Find a common multiple of the denominators. Like,**

$$\frac{3\times 2}{5\times 2}=\frac{6}{10}$$
$$\frac{3\times 3}{5\times 3}=\frac{9}{15}$$
$$\frac{3\times 4}{5\times 4}=\frac{12}{20}$$

So that, $\frac{3}{5}=\frac{6}{10}=\frac{9}{15}=\frac{12}{20}=.....$

Again,

$$\frac{2\times 2}{3\times 2}=\frac{4}{6}$$
$$\frac{2\times 3}{3\times 3}=\frac{6}{9}$$
$$\frac{2\times 4}{3\times 4}=\frac{8}{12}$$
$$\frac{2\times 5}{3\times 5}=\frac{10}{15}$$

So that, $\frac{2}{3}=\frac{4}{6}=\frac{6}{9}=\frac{8}{12}=\frac{10}{15}=....$

**Step 2: Convert fraction so that they have the same denominator.**

**For** $\frac{3}{5}$ **the denominators are** $5,\ 10,\ 15,\ 20...$

**And** $\frac{2}{3}$ **the denominators are** $3,\ 6,\ 9,\ 12,\ 15...$

**Here, we can use the least common multiples (L.C.M) of the original denominators.**

**Both fractions of** $\frac{3}{5}$ **and** $\frac{2}{3}$ **L.C.M is** $15$ **of the original denominators.**

**Now ,** $\left[\frac{3}{5},\frac{2}{3}\right]=\left[\frac{9}{15},\frac{10}{15}\right]$

**Ans:** $\left[\frac{3}{5},\frac{2}{3}\right]=\left[\frac{9}{15},\frac{10}{15}\right]$

**Example 1: Convert i1nto fractions with common denominators.**

**(1)** $\left[\frac{1}{3},\frac{1}{4}\right]\rightarrow[\quad]$ **(2)** $\left[\frac{2}{3},\frac{1}{2}\right]\rightarrow[\ ]$ **(3)** $\left[\frac{1}{2},\frac{2}{5}\right]\rightarrow[\quad]$ **(4)** $\left[\frac{1}{3},\frac{2}{5}\right]\rightarrow[\ ]$

**(5)** $\left[\frac{1}{2},\frac{1}{4}\right]\rightarrow[\ ]$ **(6)** $\left[\frac{3}{4},\frac{5}{6}\right]\rightarrow[\ ]$ **(7)** $\left[\frac{7}{9},\frac{5}{12}\right]\rightarrow[\ ]$ **(8)** $\left[\frac{1}{3},\frac{1}{4},\frac{1}{2}\right]\rightarrow[\ ]$

**(9)** $\left[\frac{1}{2},\frac{2}{3},\frac{1}{5}\right]\rightarrow[\ ]$ **(10)** $\left[\frac{3}{5},\frac{3}{4},\frac{7}{10}\right]\rightarrow[\ ]$

**Example 2: Convert into fractions with common denominators and compare with the symbols "<" or ">".**

**(1)** $\frac{7}{9}\square\frac{5}{12}$ **(2)** $\frac{3}{4}\square\frac{5}{7}$ **(3)** $\frac{2}{3}\square\frac{6}{9}$ **(4)** $\frac{11}{16}\square\frac{17}{24}$

**Exercise (2)**

1. **Convert into fractions with common denominators and compare with the symbols "<" or ">" or "=".**