

Class: 4

Subject : Mathematics

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Chapter: Eight

Fractions

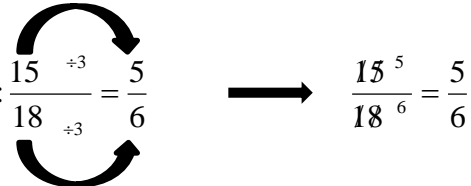
Lecture no-03

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: $\frac{15}{18} = \frac{5}{6}$ \rightarrow $\frac{15}{18} = \frac{5}{6}$



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, $\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20} = \dots\dots\dots$

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

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 into fractions with common denominators.

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

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

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

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 “=”.