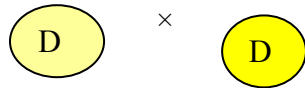


LESSON -1 – MULTIPLYING FRACTIONS

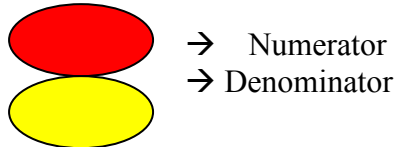
Objective – To multiply proper fractions.

Materials Required – Card board and colors or colored papers.

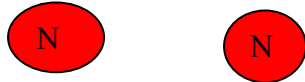
Introduction – This lesson will focus on making the students learn how to multiply two proper fractions and leave the answer in the standard form.



Warm up Exercise – Let us cut a few ‘flash’ or ‘sign’ cards in the shape of ‘8’ from the cardboard. Let us now either color the top loop of 8 in red or cover it with red paper. Similarly let’s make the bottom loop yellow.



Let there be two flash cards with Red loop as the numerator and yellow loop as the denominator, put face with each other.



So while multiplying the two fractions, the Red loop will go with red and the yellow loop will go with yellow.

Now, keep the cards one above the other so that same color is there on the top and bottom loops respectively.

Hence we can conclude that while multiplying the fractions, numerator is multiplied by the numerator and denominator with the denominator.

Notes – In today’s class we will multiply proper fractions. Every fraction has a numerator and a denominator, such that it is in the form of p/q

Where of essentially is nonzero.

So multiply numerator with the numerator and denominator with the denominator.

$$\frac{N}{D} \times \frac{N}{D}$$

i.e., if $\frac{a}{b}$ and $\frac{c}{d}$ are two fractions

$$\rightarrow \frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$$

An important thing to remember here is to find the common divisor (if any) between the numerator and the denominator and reduce the fraction to that the answer is always left in the standard form.

Solved Examples:-

$$\begin{aligned} (1) \quad & \frac{16}{27} \times \frac{25}{21} \\ & = \frac{16 \times 25}{27 \times 21} \quad [\text{as there is no common divisor}] \\ & = \frac{400}{567} \end{aligned}$$

$$\begin{aligned} (2) \quad & \frac{4}{8} \times \frac{3}{5} \\ & = \frac{1}{2} \times \frac{3}{5} \quad [\text{since 4 is the common divisor of the} \\ & \quad \text{numerator and denominator of the first fraction}]. \\ & = \frac{1 \times 3}{2 \times 5} \quad \text{or} \quad \frac{4 \times 3}{8 \times 5} \\ & = \frac{3}{10} = \frac{12}{40} = \frac{3}{10} \end{aligned}$$

So we can either reduce the fraction before multiplying or after multiplying, the final result remains the same.

$$\begin{aligned} (3) \quad & \frac{9}{16} \times \frac{8}{15} \quad [\text{here 8 and 3 are the two common divisors}] \\ & = \frac{3 \times 1}{2 \times 5} = \frac{3}{10} \\ & \quad \text{Or} \\ & \frac{9 \times 8}{16 \times 15} = \frac{72}{240} \quad [\text{here 24 is the common divisor}] \\ & = \frac{3}{10} \end{aligned}$$

$$(4) \frac{14}{42} \times \frac{35}{25} \text{ [here 14 is the common divisor in the 1st fraction and 5} \\ \text{in the second].}$$

$$= \frac{1 \times 7}{3 \times 5} \\ = \frac{7}{15}$$

Or

$$\frac{14 \times 35}{42 \times 25} = \frac{490}{1050} \text{ [Here 70 is the common divisor]} \\ = \frac{7}{15}$$

Exercises

Find the product:-

(i) $\frac{3}{5} \times \frac{7}{11}$

(ii) $\frac{5}{8} \times \frac{4}{7}$

(iii) $\frac{4}{9} \times \frac{15}{16}$

(iv) $\frac{2}{3} \times \frac{5}{44}$

(v) $\frac{12}{25} \times \frac{15}{28}$

(vi) $\frac{10}{27} \times \frac{28}{65}$

(vii) $\frac{95}{6} \times \frac{3}{20}$

(viii) $\frac{7}{10} \times \frac{5}{3}$

(ix) $\frac{9}{7} \times \frac{14}{4}$

(x) $\frac{5}{9} \times \frac{3}{2}$

Closing activity

Let the class be divided into 2 groups and ask each group and think of 5 pairs of fractions to be multiplied and ask them to write these fractions and their products on a piece of paper. Now, we prepare a chart that carries all the fractions and their products written in a haphazard manner. Kinds are them asked to match the correct answers.

I fractions	II fractions	Product