

## MULTIPLYING FRACTIONS

**Multiplying fractions is the easiest of the four basic operations.**

It is because .....

The Rule of multiplication using the definition is ...

❖ If the fractions are **simple fractions** then

✚ Multiply the numerators.

✚ Multiply the denominators.

✚ Simplify or reduce the resulting fraction, if possible.

❖ If the fractions are mixed numbers then change them to improper fractions and then follow the above steps.

In this operation there is no need to worry about a common denominator ...



Now let's check some examples

### Simple Fractions

Example 1.

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

x

$$\frac{4}{5}$$

=

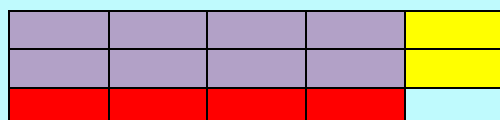
$$\frac{2 \times 4}{3 \times 5}$$



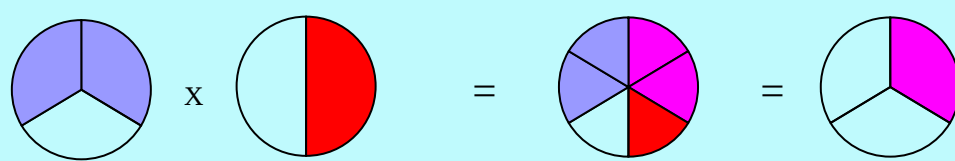
x



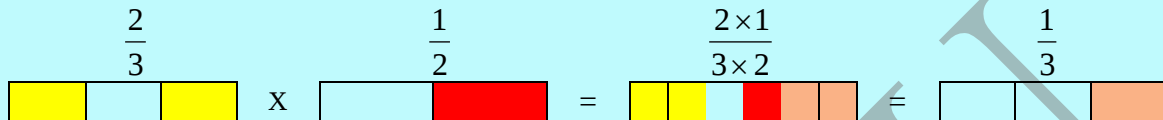
$$= \frac{8}{15}$$



Example 2.

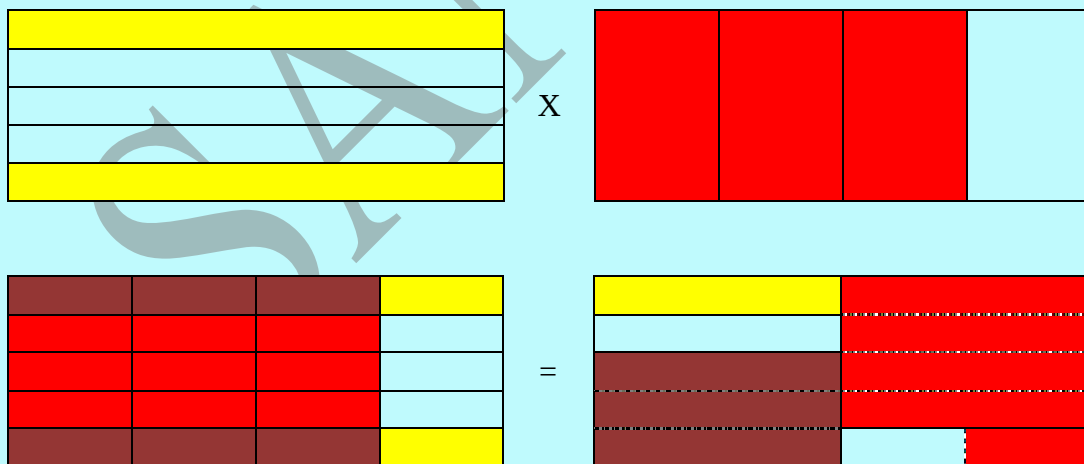
$$\frac{2}{3} \times \frac{1}{2} = \frac{2 \times 1}{3 \times 2} = \frac{2}{6} = \frac{1}{3}$$


Or



Example 3.

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



#### Example 4

#### Simple fractions

Multiply numbers on the Numerator

$$\text{a) } \frac{5}{8} \times \frac{3}{4} = \frac{5 \times 3}{8 \times 4} = \frac{15}{32}$$

Multiply numbers on the Denominator

$$\text{b) } \frac{4}{9} \times \frac{2}{5} = \frac{4 \times 2}{9 \times 5} = \frac{8}{45}$$

$$\text{c) } \frac{4}{5} \times \frac{1}{6} = \frac{4 \times 1}{5 \times 6} = \frac{4}{30} = \frac{2 \times 2}{2 \times 15} = \frac{2}{15}$$

Reduce, if possible

$$\text{d) } \frac{4}{7} \times \frac{2}{3} = \frac{4 \times 2}{7 \times 3} = \frac{8}{21}$$

$$\text{e) } \frac{8}{13} \times \frac{1}{2} = \frac{8 \times 1}{13 \times 2} = \frac{8}{26} = \frac{2 \times 4}{2 \times 13} = \frac{4}{13}$$

$$\text{f) } \frac{8}{15} \times \frac{5}{6} = \frac{8 \times 5}{15 \times 6} = \frac{40}{90} = \frac{10 \times 4}{10 \times 9} = \frac{4}{9}$$

### Improper fractions,

$$\text{g)} \quad \frac{8}{5} \times \frac{15}{4} = \frac{8 \times 15}{5 \times 4} = \frac{120}{20} = \frac{20 \times 6}{20 \times 1} = \frac{6}{1} = 6$$

$$\text{h)} \quad \frac{7}{5} \times \frac{11}{6} = \frac{7 \times 11}{5 \times 6} = \frac{77}{30} = 2 \frac{17}{30}$$

### Mixed fractions

changed to improper fractions

$$\text{i)} \quad 1 \frac{2}{3} \times 1 \frac{3}{5} = \frac{5}{3} \times \frac{8}{5} = \frac{5 \times 8}{5 \times 3} = \frac{8}{3} = 2 \frac{2}{3}$$

$$\text{j)} \quad 2 \frac{5}{6} \times 1 \frac{2}{9} = \frac{17}{6} \times \frac{11}{9} = \frac{17 \times 11}{6 \times 9} = \frac{187}{54} = 3 \frac{25}{54}$$

$$\text{k)} \quad 3 \frac{2}{4} \times 1 \frac{5}{7} = \frac{14}{4} \times \frac{12}{7} = \frac{14 \times 12}{7 \times 4} = \frac{2 \times 3}{1 \times 1} = \frac{6}{1} = 6$$

Reduce

Now it is a good time to practice multiplying fractions [WORKSHEET](#)