

CBSE Class –VII Mathematics NCERT
Solutions
Chapter 2 Fractions and Decimals (Ex. 2.3)

Question 1. Find:

(i) $\frac{1}{4}$ of

(a) $\frac{1}{4}$

(b) $\frac{3}{5}$

(c) $\frac{4}{3}$

(ii) $\frac{1}{7}$ of

(a) $\frac{2}{9}$

(b) $\frac{6}{5}$

(c) $\frac{3}{10}$

Answer: (i) (a) $\frac{1}{4}$ of $\frac{1}{4} = \frac{1}{4} \times \frac{1}{4} = \frac{1 \times 1}{4 \times 4} = \frac{1}{16}$

(b) $\frac{1}{4}$ of $\frac{3}{4} = \frac{1}{4} \times \frac{3}{4} = \frac{1 \times 3}{4 \times 4} = \frac{3}{16}$

(c) $\frac{1}{4}$ of $\frac{4}{3} = \frac{1}{4} \times \frac{4}{3} = \frac{1 \times 4}{4 \times 3} = \frac{1}{3}$

(ii) (a) $\frac{1}{7}$ of $\frac{2}{9} = \frac{1}{7} \times \frac{2}{9} = \frac{1 \times 2}{7 \times 9} = \frac{2}{63}$

(b) $\frac{1}{7}$ of $\frac{2}{9} = \frac{1}{7} \times \frac{6}{5} = \frac{1 \times 6}{7 \times 5} = \frac{6}{35}$

(c) $\frac{1}{7}$ of $\frac{2}{9} = \frac{1}{7} \times \frac{3}{10} = \frac{1 \times 3}{7 \times 10} = \frac{3}{70}$

Question 2. Multiply and reduce to lowest form (if possible):

(i) $\frac{2}{3} \times 2\frac{2}{3}$

(ii) $\frac{2}{7} \times \frac{7}{9}$

(iii) $\frac{3}{8} \times \frac{6}{4}$

(iv) $\frac{9}{5} \times \frac{3}{5}$

(v) $\frac{1}{3} \times \frac{15}{8}$

(vi) $\frac{11}{2} \times \frac{3}{10}$

(vii) $\frac{4}{5} \times \frac{12}{7}$

Answer: (i) $\frac{2}{3} \times 2\frac{2}{3} = \frac{2}{3} \times \frac{8}{3} = \frac{2 \times 8}{3 \times 3} = \frac{16}{9} = 1\frac{7}{9}$

(ii) $\frac{2}{7} \times \frac{7}{9} = \frac{2 \times 7}{7 \times 9} = \frac{2}{9}$

(iii) $\frac{3}{8} \times \frac{6}{4} = \frac{3 \times 6}{8 \times 4} = \frac{3 \times 3}{8 \times 2} = \frac{9}{16}$

(iv) $\frac{9}{5} \times \frac{3}{5} = \frac{9 \times 3}{5 \times 5} = \frac{27}{25} = 1\frac{2}{25}$

(v) $\frac{1}{3} \times \frac{15}{8} = \frac{1 \times 15}{3 \times 8} = \frac{1 \times 5}{1 \times 8} = \frac{5}{8}$

(vi) $\frac{11}{2} \times \frac{3}{10} = \frac{11 \times 3}{2 \times 10} = \frac{33}{20} = 1\frac{3}{20}$

(vii) $\frac{4}{5} \times \frac{12}{7} = \frac{4 \times 12}{5 \times 7} = \frac{48}{35} = 1\frac{13}{35}$

Question 3. Multiply the following fractions:

(i) $\frac{2}{5} \times 5\frac{1}{4}$

(ii) $6\frac{2}{5} \times \frac{7}{9}$

(iii) $\frac{3}{2} \times 5\frac{1}{3}$

(iv) $\frac{5}{6} \times 2\frac{3}{7}$

(v) $3\frac{2}{5} \times \frac{4}{7}$

(vi) $2\frac{3}{5} \times 3$

(vii) $3\frac{4}{7} \times \frac{3}{5}$

Answer: (i) $\frac{2}{5} \times 5\frac{1}{4} = \frac{2}{5} \times \frac{21}{4} = \frac{2 \times 21}{5 \times 4} = \frac{1 \times 21}{5 \times 2} = \frac{21}{10} = 2\frac{1}{10}$

$$(ii) 6\frac{2}{5} \times \frac{7}{9} = \frac{32}{5} \times \frac{7}{9} = \frac{32 \times 7}{5 \times 9} = \frac{224}{45} = 4\frac{44}{45}$$

$$(iii) \frac{3}{2} \times 5\frac{1}{3} = \frac{3}{2} \times \frac{16}{3} = \frac{48}{6} = 8$$

$$(iv) \frac{5}{6} \times 2\frac{3}{7} = \frac{5}{6} \times \frac{17}{7} = \frac{85}{42} = 2\frac{1}{42}$$

$$(v) 3\frac{2}{5} \times \frac{4}{7} = \frac{17}{5} \times \frac{4}{7} = \frac{68}{35} = 1\frac{33}{35}$$

$$(vi) 2\frac{3}{5} \times 3 = \frac{13}{5} \times \frac{3}{1} = \frac{13 \times 3}{5 \times 1} = \frac{39}{5} = 7\frac{4}{5}$$

$$(vii) 3\frac{4}{7} \times \frac{3}{5} = \frac{25}{7} \times \frac{3}{5} = \frac{5 \times 3}{7 \times 1} = \frac{15}{7} = 2\frac{1}{7}$$

Question 4. Which is greater:

$$(i) \frac{2}{7} \text{ of } \frac{3}{4} \text{ or } \frac{3}{5} \text{ of } \frac{5}{8}$$

$$(ii) \frac{1}{2} \text{ of } \frac{6}{7} \text{ or } \frac{2}{3} \text{ of } \frac{3}{7}$$

$$\text{Answer: (i) } \frac{2}{7} \text{ of } \frac{3}{4} \text{ or } \frac{3}{5} \text{ of } \frac{5}{8} \Rightarrow \frac{2}{7} \times \frac{3}{4} \text{ or } \frac{3}{5} \times \frac{5}{8}$$

$$\Rightarrow \frac{3}{14} \text{ or } \frac{3}{8} \Rightarrow \frac{3}{14} < \frac{3}{8}$$

Thus, $\frac{3}{8}$ of $\frac{5}{8}$ is greater.

$$(ii) \frac{1}{2} \text{ of } \frac{6}{7} \text{ or } \frac{2}{3} \text{ of } \frac{3}{7} \Rightarrow \frac{1}{2} \times \frac{6}{7} \text{ or } \frac{2}{3} \times \frac{3}{7}$$

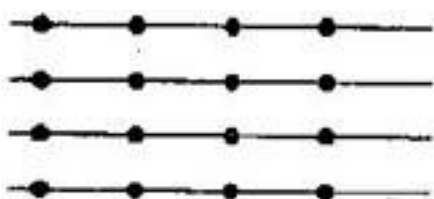
$$\Rightarrow \frac{3}{7} \text{ or } \frac{2}{7} \Rightarrow \frac{3}{7} > \frac{2}{7}$$

Thus, $\frac{1}{2}$ of $\frac{6}{7}$ is greater.

Question 5. Saili plants 4 saplings in a row in her garden. The distance between two adjacent saplings is $\frac{3}{4}$ m. Find the distance between the first and the last sapling.

Answer: The distance between two adjacent saplings = $\frac{3}{4}$ m

Saili planted 4 saplings in a row, then number of gap in saplings



Therefore, the distance between the first and the last saplings = $3 \times \frac{3}{4} = \frac{9}{4} \text{ m} = 2\frac{1}{4} \text{ m}$

Thus the distance between the first and the last saplings is $2\frac{1}{4} \text{ m}$.

Question 6. Lipika reads a book for $1\frac{3}{4}$ hours everyday. She reads the entire book in 6 days. How many hours in all were required by her to read the book?

Answer: Time taken by Lipika to read a book = $1\frac{3}{4}$ hours.

She reads entire book in 6 days.

Now, total hours taken by her to read the entire book = $1\frac{3}{4} \times 6 = \frac{7}{4} \times 6 = \frac{21}{2} = 10\frac{1}{2}$ hours

Thus, 10 hours were required by her to read the book.

Question 7. A car runs 16 km using 1 litre of petrol. How much distance will it cover using $2\frac{3}{4}$ litres of petrol?

Answer: In 1 litre of petrol, car covers the distance = 16 km

In $2\frac{3}{4}$ litres of petrol, car covers the distance = $2\frac{3}{4}$ of 16 km = $\frac{11}{4} \times 16 = 44 \text{ km}$

Thus, car will cover 44 km distance.

Question 8. (a) (i) Provide the number in the box \square , such that $\frac{2}{3} \times \square = \frac{10}{30}$.

(ii) The simplest form of the number obtained in \square is _____.

(b) (i) Provide the number in the box \square , such that $\frac{3}{5} \times \square = \frac{24}{75}$.

(ii) The simplest form of the number obtained in \square is _____.

Answer: (a) (i) $\frac{2}{3} \times \boxed{\frac{5}{10}} = \frac{10}{30}$

(ii) The simplest form of $\frac{5}{10}$ is $\frac{1}{2}$.

(b) (i) $\frac{3}{5} \times \boxed{\frac{8}{15}} = \frac{24}{75}$

(ii) The simplest form of $\frac{8}{15}$ is $\frac{8}{15}$.