NCERT Solutions for Class 7 Maths Chapter 2 Fractions and Decimals Ex 2.3

Ex 2.3 Class 7 Maths 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) $\frac{3}{10}$

Solution:

(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 $\frac{3}{5} = \frac{1}{4} \times \frac{3}{5} = \frac{1 \times 3}{4 \times 5} = \frac{3}{20}$

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

(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 $\frac{6}{5} = \frac{1}{7} \times \frac{6}{5} = \frac{1 \times 6}{7 \times 5} = \frac{6}{35}$

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

Ex 2.3 Class 7 Maths 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) $\frac{4}{5} \times \frac{12}{7}$

Solution:

(i) $\frac{2}{3} \times 2\frac{2}{3} = \frac{2}{3} \times \frac{8}{3} = \frac{2 \times 8}{3 \times 3}$

$= \frac{16}{9} = 1\frac{7}{9}$

$9\overline{)16}\,(1$
-9
7

(ii) $\frac{2}{7} \times \frac{7}{9} = \frac{2 \times 7}{7 \times 9} = \frac{14}{63} = \frac{14 \div 7}{63 \div 7} = \frac{2}{9}$

(iii) $\frac{3}{8} \times \frac{6}{4} = \frac{3 \times 6}{8 \times 4} = \frac{18}{32} = \frac{18 \div 2}{32 \div 2} = \frac{9}{16}$

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

$25\overline{)27}\,(1$
-25
2

(v) $\frac{1}{3} \times \frac{15}{8} = \frac{1 \times 15}{3 \times 8} = \frac{15}{24} = \frac{15 \div 3}{24 \div 3} = \frac{5}{8}$

(vi) $\frac{11}{2} \times \frac{3}{10} = \frac{11 \times 3}{2 \times 10} = \frac{33}{20} = 1\frac{13}{20}$

$20\overline{)33}\,(1$
-20
13

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

$35\overline{)48}\,(1$
-35
13

Ex 2.3 Class 7 Maths 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) $3\frac{4}{7} \times \frac{3}{5}$

Solution:

(i) $\frac{2}{5} \times 5\frac{1}{4} = \frac{\cancel{2}}{5} \times \frac{21}{\cancel{4}_2} = \frac{1 \times 21}{5 \times 2}$

$= \frac{21}{10} = 2\frac{1}{10}$

$10\overline{)21}\,(2$
-20
1

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

$= \frac{224}{45} = 4\frac{44}{45}$

$45\overline{)224}\,(4$
-180
-44

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

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

$42\overline{)85}\,(2$
-84
1

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

$35\overline{)68}\,(1$
-35
33

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

$5\overline{)39}\,(7$
-35
4

(vii) $3\frac{4}{7} \times \frac{3}{5} = \frac{\cancel{25}^{5}}{7} \times \frac{3}{\cancel{5}} = \frac{5 \times 3}{7}$

$= \frac{15}{7} = 2\frac{1}{7}$

$7\overline{)15}\,(2$
-14
1

Ex 2.3 Class 7 Maths Question 4.

Which is greater:

(i) $\frac{2}{7}$ of $\frac{3}{4}$ or $\frac{3}{5}$ of $\frac{5}{8}$ (ii) $\frac{1}{2}$ of $\frac{6}{7}$ or $\frac{2}{3}$ of $\frac{3}{7}$

Solution:

(i) $\frac{2}{7}$ of $\frac{3}{4} = \frac{\cancel{2}}{7} \times \frac{3}{\cancel{4}_2} = \frac{1 \times 3}{7 \times 2} = \frac{3}{14}$

$\frac{3}{5}$ of $\frac{5}{8} = \frac{3}{\cancel{5}} \times \frac{\cancel{5}}{8} = \frac{3}{8}$

Since in $\frac{3}{14}$ and $\frac{3}{8}$, their numerators are same and $14 > 8$.

$\therefore \quad \frac{3}{14} < \frac{3}{8}$ or $\frac{3}{8} > \frac{3}{14}$

Hence, $\frac{3}{5}$ of $\frac{5}{8} > \frac{2}{7}$ of $\frac{3}{4}$

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

$\frac{1}{2}$ of $\frac{6}{7} = \frac{1}{2} \times \frac{6}{7} = \frac{1 \times 6}{2 \times 7} = \frac{\cancel{6}^3}{\cancel{14}_7} = \frac{3}{7}$

$\frac{2}{3}$ of $\frac{3}{7} = \frac{2}{\cancel{3}} \times \frac{\cancel{3}}{7} = \frac{2}{7}$

Here, denominators are same.

$\therefore \quad \frac{2}{7} < \frac{3}{7}$ or $\frac{3}{7} > \frac{2}{7}$

Hence, $\frac{1}{2}$ of $\frac{6}{7} > \frac{2}{3}$ of $\frac{3}{7}$

Ex 2.3 Class 7 Maths Question 5.

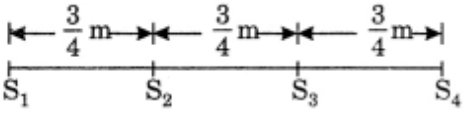
Saili plants 4 saplings, in a row, in her garden. The distance between two adjacent saplings is $\frac{3}{4}$ m. Find the distance between the first and the last sapling.

Solution:

Number of saplings = 4

Distance between two adjacent saplings = $\frac{3}{4}$ m

∴ Distance between the first and the last sapling



$= \frac{3}{4}\text{ m} + \frac{3}{4}\text{ m} + \frac{3}{4}\text{ m} = 3 \times \frac{3}{4}\text{ m}$

$= \frac{9}{4}\text{ m} = 2\frac{1}{4}\text{ m}$

Ex 2.3 Class 7 Maths 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?

Solution:

In 1 day Lipika needs $1\frac{3}{4}$ hours

In 6 days Lipika will need $6 \times 1\frac{3}{4}$ hours

$$= {}^{3}\cancel{6} \times \frac{7}{\cancel{4}_{2}} \text{ hours} = \frac{3 \times 7}{2} \text{ hours}$$

$$= \frac{21}{2} \text{ hours} = 10\frac{1}{2} \text{ hours}$$

Hence the required hours = $10\frac{1}{2}$.

Ex 2.3 Class 7 Maths 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?

Solution:

In 1 litre of petrol, the car covers 16 km distance In $2\frac{3}{4}$ litres of petrol, the car will cover $2\frac{3}{4}$ × 16 km distance

$$= 2\frac{3}{4} \times 16 \text{ km} = \frac{11}{\cancel{4}} \times \cancel{16}^{4} \text{ km}$$

$$= 11 \times 4 \text{ km} = 44 \text{ km}$$

Hence, the required distance = 44 km.

Ex 2.3 Class 7 Maths 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 _____.

Solution:

(a) (i) $\frac{2}{3} \times \square = \frac{10}{30} \Rightarrow \frac{2}{3} \times \frac{5}{10} = \frac{10}{30}$

Hence, the required number in $\square$ is $\frac{5}{10}$.

(ii) The simplest form of the number obtained in $\square$ is $\frac{\cancel{5}}{\cancel{10}_{2}} = \frac{1}{2}$.

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

Hence, the required number in the box $\square$ is $\frac{24}{75}$.

Simplest form of $\frac{\cancel{24}^{8}}{\cancel{75}_{25}} = \frac{8}{25}$.

(ii) The simplest form of the number obtained in $\square$ is $\frac{8}{25}$.