NCERT Solutions for Class 7 Maths Chapter 2 Fractions and Decimals Ex 2.2

Ex 2.2 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 $\frac{4}{3}$ = $\frac{1}{4} \times \frac{4}{3}$ = $\frac{1}{3}$

(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 2.2 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) $\dfrac{2}{3} \times 2\dfrac{2}{3} = \dfrac{2}{3} \times \dfrac{8}{3} = \dfrac{2 \times 8}{3 \times 3}$

$\qquad\qquad = \dfrac{16}{9} = 1\dfrac{7}{9}$

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

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

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

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

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

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

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

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

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

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

Ex 2.2 Class 7 Maths Question 3.

Multiply the following fractions:

(i) $\dfrac{2}{5} \times 5\dfrac{1}{4}$ (ii) $6\dfrac{2}{5} \times \dfrac{7}{9}$ (iii) $\dfrac{3}{2} \times 5\dfrac{1}{3}$

(iv) $\dfrac{5}{6} \times 2\dfrac{3}{7}$ (v) $3\dfrac{2}{5} \times \dfrac{4}{7}$ (vi) $2\dfrac{3}{5} \times 3$

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

Solution:

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

$\qquad\qquad = \dfrac{21}{10} = 2\dfrac{1}{10}$

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10) 21 (2
    -20
      1
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(ii) $6\dfrac{2}{5} \times \dfrac{7}{9} = \dfrac{32}{5} \times \dfrac{7}{9} = \dfrac{32 \times 7}{5 \times 9}$

$\qquad\qquad = \dfrac{224}{45} = 4\dfrac{44}{45}$

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45) 224 (4
    -180
     -44
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(iii) $\dfrac{3}{2} \times 5\dfrac{1}{3} = \dfrac{\cancel{3}}{\cancel{2}} \times \dfrac{\overset{8}{\cancel{16}}}{\cancel{3}} = 8$

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42) 85 (2
    -84
      1
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(iv) $\dfrac{5}{6} \times 2\dfrac{3}{7} = \dfrac{5}{6} \times \dfrac{17}{7} = \dfrac{85}{42} = 2\dfrac{1}{42}$

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

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35) 68 (1
    -35
     33
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(vi) $2\dfrac{3}{5} \times 3 = \dfrac{13}{5} \times 3 = \dfrac{39}{5} = 7\dfrac{4}{5}$

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5) 39 (7
   -35
     4
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(vii) $3\dfrac{4}{7} \times \dfrac{3}{5} = \dfrac{\overset{5}{\cancel{25}}}{7} \times \dfrac{3}{\cancel{5}} = \dfrac{5 \times 3}{7}$

$\qquad\qquad = \dfrac{15}{7} = 2\dfrac{1}{7}$

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7) 15 (2
   -14
     1
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Ex 2.2 Class 7 Maths Question 4.

Which is greater:

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

Solution:

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

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

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

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

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

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

$$\dfrac{1}{2} \text{ of } \dfrac{6}{7} = \dfrac{1}{2} \times \dfrac{6}{7} = \dfrac{1 \times 6}{2 \times 7} = \dfrac{\cancel{6}^{3}}{\cancel{14}_{7}} = \dfrac{3}{7}$$

$$\dfrac{2}{3} \text{ of } \dfrac{3}{7} = \dfrac{2}{\cancel{3}} \times \dfrac{\cancel{3}}{7} = \dfrac{2}{7}$$

Here, denominators are same.

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

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

Ex 2.2 Class 7 Maths Question 5.

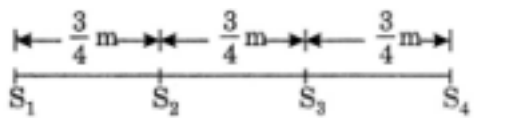Saili plants 4 saplings, in a row, in her garden. The distance between two adjacent saplings is $\dfrac{3}{4}$ m. Find the distance between the first and the last sapling.

Solution:

Number of saplings = 4

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

∴ Distance between the first and the last sapling

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

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

Ex 2.2 Class 7 Maths Question 6.

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

Solution:

$$1\dfrac{3}{4} \quad 6 \times 1\dfrac{3}{4}$$

In 1 day Lipika needs hours

In 6 days Lipika will need hours

$$= \overset{3}{\cancel{6}} \times \frac{7}{\cancel{4}_2} \text{ hours} = \frac{3 \times 7}{2} \text{ hours}$$

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

$$10\text{-}\tfrac{1}{2}$$

Hence the required hours = .

Ex 2.2 Class 7 Maths Question 7.

$$2\tfrac{3}{4}$$

A car runs 16 km using 1 litre of petrol. How much distance will it cover using litres of petrol?

Solution:

$$2\tfrac{3}{4}\, 2\tfrac{3}{4}$$

In 1 litre of petrol, the car covers 16 km distance In litres of petrol, the car will cover × 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 2.2 Class 7 Maths Question 8.

(a) (i) Provide the number in the box ☐ , such

that $\frac{2}{3} \times$ ☐ $= \frac{10}{30}$.

(ii) The simplest form of the number obtained

in ☐ is _____.

(b) (i) Provide the number in the box ☐ , such

that $\frac{3}{5} \times$ ☐ $= \frac{24}{75}$.

(ii) The simplest form of the number obtained

in ☐ is _____.

Solution:

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

Hence, the required number in $\boxed{}$ is $\dfrac{5}{10}$.

(ii) The simplest form of the number obtained

in $\boxed{}$ is $\dfrac{\cancel{5}}{\cancel{10}\,_2} = \dfrac{1}{2}$.

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

Hence, the required number in the box $\boxed{}$

is $\dfrac{24}{75}$.

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

(ii) The simplest form of the number obtained

in $\boxed{}$ is $\dfrac{8}{25}$.