

Name: \_\_\_\_\_ Class &amp; Sec: \_\_\_\_\_ Roll No. \_\_\_\_\_ Date: 19.05.2020

Multiplication of Fractions

- 3 steps:
- ①  $N \times N$
  - ②  $D \times D$
  - ③ Simplest form (Cuttering)

① Whole no.  $\times$  Fraction

$$3 \times \frac{4}{5} = \frac{3 \times 4}{1 \times 5} = \frac{12}{5}$$

$$\frac{4}{5} \times 3 = \frac{4 \times 3}{5 \times 1} = \frac{12}{5}$$

② Whole number  $\times$  Mixed Fraction.

$$3 \times 2\frac{5}{7} = 3 \times \frac{19}{7} = \frac{3 \times 19}{1 \times 7} = \frac{57}{7} = 8\frac{1}{7}$$

③ Fraction  $\times$  Fraction

$$\frac{2}{3} \times \frac{8}{3} = \frac{2 \times 8}{3 \times 3} = \frac{16}{9}$$

Spl. case I  $\frac{2}{7} \times \frac{7}{9} = \frac{2}{9}$

II  $\frac{3}{4} \times \frac{4}{4} = \frac{3 \times 3}{4 \times 4} = \frac{9}{16}$

III  $\frac{1}{2}$  of 24 =  $\frac{1}{2} \times 24 = \frac{1 \times 24}{2 \times 1} = \frac{24}{2} = \frac{12}{1} = 12$

④ Fraction  $\times$  Mixed Fraction

$$\frac{2}{5} \times 5\frac{1}{4} = \frac{2}{5} \times \frac{21}{4} = \frac{21}{10}$$

Case I  $\frac{1}{4}$  of  $4\frac{2}{9}$  =  $\frac{1}{4} \times \frac{38}{9} = \frac{1 \times 19}{2 \times 9} = \frac{19}{18}$

$\downarrow$   
 $\times$

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

5. Find:

(a)  $\frac{1}{2}$  of (i) 24 (ii) 46      (b)  $\frac{2}{3}$  of (i) 18      (ii) 27

(c)  $\frac{3}{4}$  of (i) 16 (ii) 36      (d)  $\frac{4}{5}$  of (i) 20      (ii) 35

6. Multiply and express as a mixed fraction :

(a)  $3 \times 5\frac{1}{5}$       (b)  $5 \times 6\frac{3}{4}$       (c)  $7 \times 2\frac{1}{4}$

(d)  $4 \times 6\frac{1}{3}$       (e)  $3\frac{1}{4} \times 6$       (f)  $3\frac{2}{5} \times 8$

7. Find (a)  $\frac{1}{2}$  of (i)  $2\frac{3}{4}$  (ii)  $4\frac{2}{9}$       (b)  $\frac{5}{8}$  of (i)  $3\frac{5}{6}$       (ii)  $9\frac{2}{3}$



**Question 5**

Find:

(a)  $\frac{1}{2}$  of (i) 24 (ii) 46

(b)  $\frac{2}{3}$  of (i) 18 (ii) 27

(c)  $\frac{3}{4}$  of (i) 16 (ii) 36

(d)  $\frac{4}{5}$  of (i) 20 (ii) 35

**Answer 5:**

(a) (i)  $\frac{1}{2}$  of 24 = 12

(ii)  $\frac{1}{2}$  of 46 = 23

(b) (i)  $\frac{2}{3}$  of 18 =  $\frac{2}{3} \times 18 = 2 \times 6 = 12$

(ii)  $\frac{2}{3}$  of 27 =  $\frac{2}{3} \times 27 = 2 \times 9 = 18$

(c) (i)  $\frac{3}{4}$  of 16 =  $\frac{3}{4} \times 16 = 3 \times 4 = 12$

(ii)  $\frac{3}{4}$  of 36 =  $\frac{3}{4} \times 36 = 3 \times 9 = 27$

(d) (i)  $\frac{4}{5}$  of 20 =  $\frac{4}{5} \times 20 = 4 \times 4 = 16$

(ii)  $\frac{4}{5}$  of 35 =  $\frac{4}{5} \times 35 = 4 \times 7 = 28$

**Question 6**

(a)  $3 \times 5\frac{1}{5}$

(b)  $5 \times 6\frac{3}{4}$

(c)  $7 \times 2\frac{1}{4}$

(d)  $4 \times 6\frac{1}{3}$

(e)  $3\frac{1}{4} \times 6$

(f)  $3\frac{2}{5} \times 8$

**Answer 6:**

(a)  $3 \times 5\frac{1}{5} = 3 \times \frac{26}{5} = \frac{3 \times 26}{5} = \frac{78}{5} = 15\frac{3}{5}$

(b)  $5 \times 6\frac{3}{4} = 5 \times \frac{27}{4} = \frac{5 \times 27}{4} = \frac{135}{4} = 33\frac{3}{4}$

(c)  $7 \times 2\frac{1}{4} = 7 \times \frac{9}{4} = \frac{7 \times 9}{4} = \frac{63}{4} = 15\frac{3}{4}$

(d)  $4 \times 6\frac{1}{3} = 4 \times \frac{19}{3} = \frac{4 \times 19}{3} = \frac{76}{3} = 25\frac{1}{3}$

(e)  $3\frac{1}{4} \times 6 = \frac{13}{4} \times 6 = \frac{13 \times 3}{2} = \frac{39}{2} = 19\frac{1}{2}$

(f)  $3\frac{2}{5} \times 8 = \frac{17}{5} \times 8 = \frac{17 \times 8}{5} = \frac{136}{5} = 27\frac{1}{5}$

**Question 7**

Find:

$$(a) \frac{1}{2} \text{ of (i) } 2\frac{3}{4} \text{ (ii) } 4\frac{2}{9} \qquad (b) \frac{5}{8} \text{ of (i) } 3\frac{5}{6} \text{ (ii) } 9\frac{2}{3}$$

**Answer 7:**

$$\begin{array}{ll} (a) & (i) \quad \frac{1}{2} \text{ of } 2\frac{3}{4} = \frac{1}{2} \times 2\frac{3}{4} = \frac{1}{2} \times \frac{11}{4} = \frac{11}{8} = 1\frac{3}{8} \\ & (ii) \quad \frac{1}{2} \text{ of } 4\frac{2}{9} = \frac{1}{2} \times 4\frac{2}{9} = \frac{1}{2} \times \frac{38}{9} = \frac{19}{9} = 2\frac{1}{9} \\ (b) & (i) \quad \frac{5}{8} \text{ of } 3\frac{5}{6} = \frac{5}{8} \times 3\frac{5}{6} = \frac{5}{8} \times \frac{23}{6} = \frac{115}{48} = 2\frac{19}{48} \\ & (ii) \quad \frac{5}{8} \text{ of } 9\frac{2}{3} = \frac{5}{8} \times 9\frac{2}{3} = \frac{5}{8} \times \frac{29}{3} = \frac{145}{24} = 6\frac{1}{24} \end{array}$$

### EXERCISE 2.3

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)  $\frac{3}{10}$



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

3. For the fractions given below :

- (a) Multiply and reduce the product to lowest form (if possible)
- (b) Tell whether the fraction obtained is proper or improper.
- (c) If the fraction obtained is improper then convert it into a mixed fraction.

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

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  $\frac{3}{7}$

## (Chapter – 2) (Fractions and Decimals)

## (Class – VII)

## Exercise – 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 1:**

|      |     |  |
|------|-----|--|
| (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 $\frac{4}{3} = \frac{1}{4} \times \frac{4}{3} = \frac{1 \times 4}{4 \times 3} = \frac{1}{3}$    |
| (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 $\frac{6}{5} = \frac{1}{7} \times \frac{6}{5} = \frac{1 \times 6}{7 \times 5} = \frac{6}{35}$   |
|      | (c) | $\frac{1}{7}$ of $\frac{2}{9} = \frac{1}{7} \times \frac{3}{10} = \frac{1 \times 3}{7 \times 10} = \frac{3}{70}$ |

**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 2:**

|       |  |
|-------|--|
| (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 23

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 3:**

|       |   |
|-------|---|
| (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?

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

**Answer 4:**

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

$$\Rightarrow \frac{2}{7} \times \frac{3}{4} \text{ or } \frac{3}{5} \times \frac{5}{8}$$

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

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

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

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

$$\Rightarrow \frac{1}{2} \times \frac{6}{7} \text{ or } \frac{2}{3} \times \frac{3}{7}$$

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

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

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