

**EXERCISE 2C**
**PAGE: 30**
**1. Write down the reciprocal of:**

i.  $(\frac{5}{8})$

**Solution:-**

Reciprocal of  $(\frac{5}{8})$  is  $(\frac{8}{5})$   $[\because (\frac{5}{8}) \times (\frac{8}{5}) = 1]$

ii. **7**

**Solution:-**

Reciprocal of 7 is  $(\frac{1}{7})$   $[\because ((\frac{7}{1}) \times (\frac{1}{7})) = 1]$

iii.  $(\frac{1}{12})$

**Solution:-**

Reciprocal of  $(\frac{1}{12})$  is  $(\frac{12}{1})$   $[\because ((\frac{1}{12}) \times (\frac{12}{1})) = 1]$   
 $= 12$

iv.  $[12(\frac{3}{5})]$

**Solution:-**

 Convert mixed fraction into improper fraction,  
 $= (\frac{63}{5})$ 

Reciprocal of  $(\frac{63}{5})$  is  $(\frac{5}{63})$   $[\because ((\frac{63}{5}) \times (\frac{5}{63})) = 1]$

**2. Simplify:**

i.  $(\frac{4}{7}) \div (\frac{9}{14})$

**Solution:-**

We have,

$$= (\frac{4}{7}) \div (\frac{9}{14})$$

$$= (\frac{4}{7}) \times (\frac{14}{9})$$

 (Because reciprocal of  $(\frac{9}{14})$  is  $(\frac{14}{9})$ )

$$= (\frac{4 \times 14}{7 \times 9})$$

$$= (\frac{4 \times 2}{1 \times 9})$$

$$= (\frac{8}{9})$$

ii.  $(\frac{7}{10}) \div (\frac{3}{5})$

**Solution:-**

We have,

$$= (\frac{7}{10}) \div (\frac{3}{5})$$

$$= (\frac{7}{10}) \times (\frac{5}{3})$$

 (Because reciprocal of  $(\frac{3}{5})$  is  $(\frac{5}{3})$ )

$$= (\frac{7 \times 5}{10 \times 3})$$

$$= (\frac{7 \times 1}{2 \times 3})$$

$$= (\frac{7}{6})$$

$$= [1 \frac{1}{6}]$$

iii.  $(\frac{8}{9}) \div (16)$

**Solution:-**

We have,

$$= (8/9) \div (16/1)$$

$$= (8/9) \times (1/16)$$

(Because reciprocal of  $(16/1)$  is  $(1/16)$ )

$$= (8 \times 1) / (9 \times 16)$$

$$= (1 \times 1) / (9 \times 2)$$

$$= (1/18)$$

iv.  **$(9) \div (1/3)$** **Solution:-**

We have,

$$= (9/1) \div (1/3)$$

$$= (9/1) \times (3/1)$$

(Because reciprocal of  $(1/3)$  is  $(3/1)$ )

$$= (9 \times 3) / (1 \times 1)$$

$$= 27$$

v.  **$(24) \div (6/7)$** **Solution:-**

We have,

$$= (24/1) \div (6/7)$$

$$= (24/1) \times (7/6)$$

(Because reciprocal of  $(6/7)$  is  $(7/6)$ )

$$= (24 \times 7) / (1 \times 6)$$

$$= (4 \times 7) / (1 \times 1)$$

$$= 28$$

vi.  **$[3 \frac{3}{5}] \div (4/5)$** **Solution:-**

Convert mixed fraction into improper fraction,

$$= [3 \frac{3}{5}] = (18/5)$$

We have,

$$= (18/5) \div (4/5)$$

$$= (18/5) \times (5/4)$$

(Because reciprocal of  $(4/5)$  is  $(5/4)$ )

$$= (18 \times 5) / (5 \times 4)$$

$$= (9 \times 1) / (1 \times 2)$$

$$= (9/2)$$

$$= [4 \frac{1}{2}]$$

vii.  **$[3 \frac{3}{7}] \div (8/21)$** **Solution:-**

Convert mixed fraction into improper fraction,

$$= [3 \frac{3}{7}] = (24/7)$$

We have,  
$$= (24/7) \div (8/21)$$
$$= (24/7) \times (21/8)$$
(Because reciprocal of  $(8/21)$  is  $(21/8)$ )
$$= (24 \times 21) / (7 \times 8)$$
$$= (3 \times 3) / (1 \times 1)$$
$$= 9$$

viii.  $[5 \frac{4}{7}] \div [1 \frac{3}{10}]$

**Solution:-**

Convert mixed fraction into improper fraction,

$$= [5 \frac{4}{7}] = (39/7)$$
$$= [1 \frac{3}{10}] = (13/10)$$

We have,

$$= (39/7) \div (13/10)$$
$$= (39/7) \times (10/13)$$

(Because reciprocal of  $(13/10)$  is  $(10/13)$ )

$$= (39 \times 10) / (7 \times 13)$$
$$= (390) / (91)$$
$$= (30 / 7)$$
$$= [4 \frac{2}{7}]$$

ix.  $[15 \frac{3}{7}] \div [1 \frac{23}{49}]$

**Solution:-**

Convert mixed fraction into improper fraction,

$$= [15 \frac{3}{7}] = (108/7)$$
$$= [1 \frac{23}{49}] = (72/49)$$

We have,

$$= (108/7) \div (72/49)$$
$$= (108/7) \times (49/72)$$

(Because reciprocal of  $(72/49)$  is  $(49/72)$ )

$$= (108 \times 49) / (7 \times 72)$$
$$= (9 \times 7) / (1 \times 6)$$
$$= (3 \times 7) / (1 \times 2)$$
$$= (21/2)$$
$$= [10 \frac{1}{2}]$$

### 3. Divide:

i.  $(11/24)$  by  $(7/8)$

**Solution:-**

The above question can be written as,

$$= (11/24) \div (7/8)$$

We have,

$$= (11/24) \times (8/7)$$

$$\begin{aligned} & \text{(Because reciprocal of } (7/8) \text{ is } (8/7)) \\ & = (11 \times 8) / (24 \times 7) \\ & = (11 \times 1) / (3 \times 7) \\ & = (11/21) \end{aligned}$$

ii. **[6 7/8] by (11/16)**

**Solution:-**

The above question can be written as,

$$= [6 \frac{7}{8}] \div (11/16)$$

Convert mixed fraction into improper fraction,

$$= [6 \frac{7}{8}] = (55/8)$$

We have,

$$= (55/8) \times (16/11)$$

(Because reciprocal of (11/16) is (16/11))

$$= (55 \times 16) / (8 \times 11)$$

$$= (5 \times 2) / (1 \times 1)$$

$$= 10$$

iii. **[5 5/9] by [3 1/3]**

**Solution:-**

The above question can be written as,

$$= [5 \frac{5}{9}] \div [3 \frac{1}{3}]$$

Convert mixed fraction into improper fraction,

$$= [5 \frac{5}{9}] = (50/9)$$

$$= [3 \frac{1}{3}] = (10/3)$$

We have,

$$= (50/9) \times (3/10)$$

(Because reciprocal of (10/3) is (3/10))

$$= (50 \times 3) / (9 \times 10)$$

$$= (5 \times 1) / (3 \times 1)$$

$$= (5/3)$$

$$= [1 \frac{2}{3}]$$

iv. **32 by [1 3/5]**

**Solution:-**

The above question can be written as,

$$= 32 \div [1 \frac{3}{5}]$$

Convert mixed fraction into improper fraction,

$$= [1 \frac{3}{5}] = (8/5)$$

We have,

$$= (32/1) \times (5/8)$$

(Because reciprocal of (8/5) is (5/8))

$$\begin{aligned} &= (32 \times 5) / (1 \times 8) \\ &= (4 \times 5) / (1 \times 1) \\ &= 20 \end{aligned}$$

v. **45 by [1 4/5]**

**Solution:-**

The above question can be written as,

$$= 45 \div [1 \frac{4}{5}]$$

Convert mixed fraction into improper fraction,

$$= [1 \frac{4}{5}] = (9/5)$$

We have,

$$= (45/1) \times (5/9)$$

(Because reciprocal of (9/5) is (5/9))

$$= (45 \times 5) / (1 \times 9)$$

$$= (5 \times 5) / (1 \times 1)$$

$$= 25$$

vi. **63 by [2 1/4]**

**Solution:-**

The above question can be written as,

$$= 63 \div [2 \frac{1}{4}]$$

Convert mixed fraction into improper fraction,

$$= [2 \frac{1}{4}] = (9/4)$$

We have,

$$= (63/1) \times (4/9)$$

(Because reciprocal of (9/4) is (4/9))

$$= (63 \times 4) / (1 \times 9)$$

$$= (7 \times 4) / (1 \times 1)$$

$$= 28$$

4. **A rope of length [13 1/2] m has been divided into 9 pieces of the same length. What is the length of each piece?**

**Solution:-**

From the question,

$$\text{Rope length} = [13 \frac{1}{2}] \text{ m} = (27/2)$$

Number of equal pieces divided into = 9

Then we have,

$$= (27/2) \div (9/1)$$

$$= (27/2) \times (1/9)$$

(Because reciprocal of (9/1) is (1/9))

$$= (27 \times 1) / (2 \times 9)$$

$$= (3 \times 1) / (2 \times 1)$$

$$= (3 / 2)$$

$$= [1 \frac{1}{2}] \text{ m}$$

Hence, the length of 9 pieces of rope is  $[1 \frac{1}{2}] \text{ m}$

5. **18 boxes of nails weigh equally and their total weight is  $[49 \frac{1}{2}] \text{ kg}$ . How much does each box weigh?**

**Solution:-**

From the question,

$$\text{Total weight of boxes} = [49 \frac{1}{2}] \text{ kg} = (99/2)$$

$$\text{Number of boxes} = 18$$

Then we have,

$$= (99/2) \div (18/1)$$

$$= (99/2) \times (1/18)$$

(Because reciprocal of  $(18/1)$  is  $(1/18)$ )

$$= (99 \times 1) / (2 \times 18)$$

$$= (11 \times 1) / (2 \times 2)$$

$$= (11 / 4)$$

$$= [2 \frac{3}{4}] \text{ kg}$$

Hence, the weight of each box is  $[2 \frac{3}{4}] \text{ kg}$

6. **By selling oranges at the rate of ₹  $[6 \frac{3}{4}]$  per orange, a man gets ₹ 378. How many oranges does he sell?**

**Solution:-**

From the question,

$$\text{Cost for 1 orange} = ₹ [6 \frac{3}{4}] = (27/4)$$

$$\text{Man gets} = ₹ 378$$

Then we have,

$$= (378/1) \div (27/4)$$

$$= (378/1) \times (4/27)$$

(Because reciprocal of  $(27/4)$  is  $(4/27)$ )

$$= (378 \times 4) / (1 \times 27)$$

$$= (42 \times 4) / (1 \times 3)$$

$$= (14 \times 4) / (1 \times 1)$$

$$= 56$$

Hence, the man sold 56 oranges.

7. **Mangoes are sold at ₹  $[43 \frac{1}{2}]$  per kg. What is the weight of mangoes available for ₹  $[326 \frac{1}{4}]$ ?**

**Solution:-**

From the question,

$$\text{Mangoes are sold at} = ₹ [43 \frac{1}{2}] = (87/2)$$

$$\text{The weight of mangoes available for} = ₹ [326 \frac{1}{4}] = (1305/4)$$

Then we have,

$$= (1305/4) \div (87/2)$$

$$= (1305/4) \times (2/87)$$

$$\begin{aligned} & \text{(Because reciprocal of } (87/2) \text{ is } (2/87)) \\ & = (1305 \times 2) / (4 \times 87) \\ & = (435 \times 1) / (2 \times 29) \\ & = [7 \frac{1}{2}] \text{ kg} \end{aligned}$$

Hence, the weight of mangoes available for  $(1305/4)$  is  $[7 \frac{1}{2}]$  kg

8. Vikas can cover a distance of  $[20 \frac{2}{3}]$  km in  $[7 \frac{3}{4}]$  hours on foot. How many km per hour does he walk?

**Solution:-**

From the question,

Distance covered by vikas in  $[7 \frac{3}{4}]$  hours on foot =  $[20 \frac{2}{3}]$  km =  $(62/3)$

Distance covered by vikas in 1 hour =  $(62/3) \div (31/4)$

Then we have,

$$= (62/3) \times (4/31)$$

(Because reciprocal of  $(31/4)$  is  $(4/31)$ )

$$= (62 \times 4) / (3 \times 31)$$

$$= (2 \times 4) / (3 \times 1)$$

$$= (8) / (3)$$

$$= [2 \frac{2}{3}] \text{ km}$$

Hence, Distance covered by vikas in 1 hour is  $[2 \frac{2}{3}]$  km