

## EXERCISE 2C

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## 1. Write down the reciprocal of:

i.  $(5/8)$ **Solution:-**Reciprocal of  $(5/8)$  is  $(8/5)$ 

$$[\because ((5/8) \times (8/5)) = 1]$$

ii.  $7$ **Solution:-**Reciprocal of  $7$  is  $(1/7)$ 

$$[\because ((7/1) \times (1/7)) = 1]$$

iii.  $(1/12)$ **Solution:-**Reciprocal of  $(1/12)$  is  $(12/1)$   
 $= 12$ 

$$[\because ((1/12) \times (12/1)) = 1]$$

iv.  $[12(3/5)]$ **Solution:-**Convert mixed fraction into improper fraction,  
 $= (63/5)$ Reciprocal of  $(63/5)$  is  $(5/63)$ 

$$[\because ((63/5) \times (5/63)) = 1]$$

## 2. Simplify:

i.  $(4/7) \div (9/14)$ **Solution:-**

We have,

$$= (4/7) \div (9/14)$$

$$= (4/7) \times (14/9)$$

(Because reciprocal of  $(9/14)$  is  $(14/9)$ )

$$= (4 \times 14) / (7 \times 9)$$

$$= (4 \times 2) / (1 \times 9)$$

$$= (8/9)$$

ii.  $(7/10) \div (3/5)$ **Solution:-**

We have,

$$= (7/10) \div (3/5)$$

$$= (7/10) \times (5/3)$$

(Because reciprocal of  $(3/5)$  is  $(5/3)$ )

$$= (7 \times 5) / (10 \times 3)$$

$$= (7 \times 1) / (2 \times 3)$$

$$= (7/6)$$

$$= [1(1/6)]$$

iii.  $(8/9) \div (16)$ **Solution:-**

We have,

$$\begin{aligned} &= (8/9) \div (16/1) \\ &= (8/9) \times (1/16) \\ \text{(Because reciprocal of } (16/1) \text{ is } (1/16)) \\ &= (8 \times 1) / (9 \times 16) \\ &= (1 \times 1) / (9 \times 2) \\ &= (1/18) \end{aligned}$$

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

**Solution:-**

We have,

$$\begin{aligned} &= (9/1) \div (1/3) \\ &= (9/1) \times (3/1) \\ \text{(Because reciprocal of } (1/3) \text{ is } (3/1)) \\ &= (9 \times 3) / (1 \times 1) \\ &= 27 \end{aligned}$$

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

**Solution:-**

We have,

$$\begin{aligned} &= (24/1) \div (6/7) \\ &= (24/1) \times (7/6) \\ \text{(Because reciprocal of } (6/7) \text{ is } (7/6)) \\ &= (24 \times 7) / (1 \times 6) \\ &= (4 \times 7) / (1 \times 1) \\ &= 28 \end{aligned}$$

vi.  **$[3(3/5)] \div (4/5)$**

**Solution:-**

Convert mixed fraction into improper fraction,

$$= [3(3/5)] = (18/5)$$

We have,

$$\begin{aligned} &= (18/5) \div (4/5) \\ &= (18/5) \times (5/4) \\ \text{(Because reciprocal of } (4/5) \text{ is } (5/4)) \\ &= (18 \times 5) / (5 \times 4) \\ &= (9 \times 1) / (1 \times 2) \\ &= (9/2) \\ &= [4(1/2)] \end{aligned}$$

vii.  **$[3(3/7)] \div (8/21)$**

**Solution:-**

Convert mixed fraction into improper fraction,

$$= [3(3/7)] = (24/7)$$

We have,

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

$$\begin{aligned} &= (24 \times 21) / (7 \times 8) \\ &= (3 \times 3) / (1 \times 1) \\ &= 9 \end{aligned}$$

viii.  **$[5(4/7)] \div [1(3/10)]$**

**Solution:-**

Convert mixed fraction into improper fraction,

$$\begin{aligned} &= [5(4/7)] = (39/7) \\ &= [1(3/10)] = (13/10) \end{aligned}$$

We have,

$$\begin{aligned} &= (39/7) \div (13/10) \\ &= (39/7) \times (10/13) \end{aligned}$$

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

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

ix.  **$[15(3/7)] \div [1(23/49)]$**

**Solution:-**

Convert mixed fraction into improper fraction,

$$\begin{aligned} &= [15(3/7)] = (108/7) \\ &= [1(23/49)] = (72/49) \end{aligned}$$

We have,

$$\begin{aligned} &= (108/7) \div (72/49) \\ &= (108/7) \times (49/72) \end{aligned}$$

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

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

3. **Divide:**

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

**Solution:-**

The above question can be written as,

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

We have,

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

(Because reciprocal of  $(7/8)$  is  $(8/7)$ )

$$\begin{aligned} &= (11 \times 8) / (24 \times 7) \\ &= (11 \times 1) / (3 \times 9) \\ &= (11/21) \end{aligned}$$

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

**Solution:-**

The above question can be written as,  
 $= [6(7/8)] \div (11/16)$   
Convert mixed fraction into improper fraction,  
 $= [6(7/8)] = (55/8)$   
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,  
 $= [5(5/9)] \div [3(1/3)]$   
Convert mixed fraction into improper fraction,  
 $= [5(5/9)] = (50/9)$   
 $= [3(1/3)] = (10/3)$   
We have,  
 $= (50/9) \times (3/10)$   
(Because reciprocal of  $(10/3)$  is  $(3/10)$ )  
 $= (50 \times 3) / (9 \times 10)$   
 $= (5 \times 1) / (3 \times 1)$   
 $= (5/3)$   
 $= [1(2/3)]$

iv. **32 by  $[1(3/5)]$**

**Solution:-**

The above question can be written as,  
 $= 32 \div [1(3/5)]$   
Convert mixed fraction into improper fraction,  
 $= [1(3/5)] = (8/5)$   
We have,  
 $= (32/1) \times (5/8)$   
(Because reciprocal of  $(8/5)$  is  $(5/8)$ )  
 $= (32 \times 5) / (1 \times 8)$   
 $= (4 \times 5) / (1 \times 1)$   
 $= 20$

v. **45 by  $[1(4/5)]$**

**Solution:-**

The above question can be written as,  
 $= 45 \div [1(4/5)]$   
Convert mixed fraction into improper fraction,  
 $= [1(4/5)] = (9/5)$   
We have,  
 $= (45/1) \times (5/9)$

$$\begin{aligned} & \text{(Because reciprocal of } (9/5) \text{ is } (5/9)) \\ &= (45 \times 5) / (1 \times 9) \\ &= (5 \times 5) / (1 \times 1) \\ &= 25 \end{aligned}$$

vi. **63 by  $[2(1/4)]$**

**Solution:-**

The above question can be written as,

$$= 63 \div [2(1/4)]$$

Convert mixed fraction into improper fraction,

$$= [2(1/4)] = (9/4)$$

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,

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

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  $(1/9)$ )

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

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

$$= (3 / 2)$$

$$= [1(1/2)] \text{ m}$$

Hence, the length of 9 pieces of rope is  $[1(1/2)]$  m

5. **18 boxes of nails weigh equally and their total weight is  $[49(1/2)]$  kg. How much does each box weigh?**

**Solution:-**

From the question,

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

Number of boxes = 18

Then we have,

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

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

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

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

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

$$= (11 / 4)$$

$$= [2(3/4)] \text{ kg}$$

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

Cost for 1 orange = ₹  $6\frac{3}{4}$  =  $\frac{27}{4}$

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 orange.

7. Mangos 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,

Mangos are sold at = ₹  $43\frac{1}{2}$  =  $\frac{87}{2}$

The weight of mangos available for = ₹  $326\frac{1}{4}$  =  $\frac{1305}{4}$

Then we have,

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

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

(Because reciprocal of  $(87/2)$  is  $(2/87)$ )

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

$$= (435 \times 1) / (2 \times 29)$$

$$= 7\frac{1}{2} \text{ kg}$$

Hence, the weight of mangos available for  $\frac{1305}{4}$  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 =  $\frac{62}{3}$

Distance covered by vikas in 1 hour =  $\frac{62}{3} \div \frac{31}{4}$

Then we have,

$$= (\frac{62}{3}) \times (\frac{4}{31})$$

(Because reciprocal of  $\frac{31}{4}$  is  $\frac{4}{31}$ )

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

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

$$= \frac{8}{3}$$

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

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