EXERCISE 2.3 PAGE NO: 2.24

1. Find the reciprocal of each of the following fractions and classify them as proper, improper and whole numbers:
(i) (3/7)
(ii) (5/8)
(iii) (9/7)
(iv) (6/5)
(v) (12/7)
(vi) (1/8)

Solution:
(i) Given (3/7)
Reciprocal of (3/7) is (7/3)
(7/3) is improper fraction

(ii) Given (5/8)
Reciprocal of (5/8) is (8/5)
It is improper fraction

(iii) Given (9/7)
Reciprocal of (9/7) is (7/9)
It is proper fraction

(iv) Given (6/5)
Reciprocal of (6/5) is (5/6)
It is proper fraction

(v) Given (12/7)
Reciprocal of (12/7) is (7/12)
It is proper fraction

(vi) Given (1/8)
Reciprocal of (1/8) is (8/1) = 8
It is whole number

2. Divide:

(i) (3/8) by (5/9)

(ii) 3 1/4 by (2/3)

(iii) (7/8) by 4 1/2

(iv) 6 1/4 by 2 3/5

Solution:

(i) Given (3/8) by (5/9)

From the rule of division of fraction we know that (a/b) ÷ (c/d) = (a/b) × (d/c)

(3/8)/ (5/9) = (3/8) × (9/5)

= (3 × 9) / (8 × 5)

= (27/40)

(ii) Given 3 1/4 by (2/3)

Converting 3 1/4 to improper fraction we get (13/4)

From the rule of division of fraction we know that (a/b) ÷ (c/d) = (a/b) × (d/c)

(13/4)/ (2/3) = (13/4) × (3/2)

= (13 × 3) / (4 × 2)

= (39/8)

= 4 7/8

(iii) Given (7/8) by 4 1/2

Converting 4 1/2 to improper fraction we get (9/2)

From the rule of division of fraction we know that (a/b) ÷ (c/d) = (a/b) × (d/c)

(7/8)/ (9/2) = (7/8) × (2/9)

= (7 × 2) / (8 × 9)

= (14/72)

= (7/36)

(iv) Given 6 1/4 by 2 3/5

Converting 6 1/4 and 2 3/5 to improper fraction we get (25/4) and (13/5)

From the rule of division of fraction we know that (a/b) ÷ (c/d) = (a/b) × (d/c)

(25/4)/ (13/5) = (25/4) × (5/13)

= (25 × 5) / (4 × 13)

= (125/52)

= 2 21/52

3. Divide:
(i) (3/8) by 4
(ii) (9/16) by 6
(iii) 9 by (3/16)
(iv) 10 by (100/3)

Solution:
(i) Given (3/8) by 4
= (3/8)/4
= (3/8 × 4)
= (3/32)

(ii) Given (9/16) by 6
= (9/16)/6
= (9/ 16 × 6)
= (9/ 96)
= (3/32)

(iii) Given 9 by (3/16)
= 9/ (3/16)
= (9 × 16)/3
= 16 × 3
= 48

(iv) Given 10 by (100/3)
= 10/ (100/3)
= (10 × 3)/100
= (3/10)

4. Simplify:
(i) (3/10) ÷ (10/3)
(ii) 4 3/5 ÷ (4/5)
(iii) 5 4/7 ÷ 1 3/10
(iv) 4 ÷ 2 2/5

Solution:

(i) Given (3/10) ÷ (10/3)

= (3 × 3)/ (10 × 10)

= (9/100)

(ii) Given $4\ 3/5 \div (4/5)$

First convert the given mixed fraction into improper fractions

$4\ 3/5 = (23/5)$

(23/5) ÷ (4/5) = (23 × 5)/ (5 × 4)

= (23/4)

$= 5\ 3/4$

(iii) Given $5\ 4/7 \div 1\ 3/10$

First convert the given mixed fractions into improper fractions

(39/7) and (13/10)

(39/7) ÷ (13/10) = (39 × 10)/ (7 × 13)

= (390/91)

= (30/7)

$= 4\ 2/7$

(iv) Given $4 \div 2\ 2/5$

First convert the given mixed fraction into improper fraction

$2\ 2/5 = (12/5)$

4 ÷ (12/5) = (4 × 5)/12

= (20/12)

$= 1\ 2/3$

5. A wire of length 12 1/2 m is cut into 10 pieces of equal length. Find the length of each piece.

Solution:

Given total length of the wire is = $12\ 1/2 = (25/2)$ m

It is cut into 10 pieces, so length of one piece is

= (25/2)/10
= (25/20)
= (5/4)
= 1 1/4 m

6. The length of rectangular plot of area 65 1/3 m^2 is 12 1/4 m. What is the width of the plot?

Solution:

Given area of rectangular plot is 65 1/3 m^2 = (196/3) m^2
Length of the same plot is 12 1/4 m = (49/4) m
Width of the plot is
Area = length × breadth
(196/3) = (49/4) × breadth
Breadth = (196/3)/ (49/4)
= (196 × 4)/ (49 × 3)
= (784/147)
= 5 1/3

7. By what number should 6 2/9 be multiplied to get 4 4/9?

Solution:

Let x be the number which needs to be multiplied by 6 2/9 = (56/9)
x × (56/9) = 4 4/9
x × (56/9) = (40/9)
x = (40/9) × (9/56)
x = (40/56)
x = (5/7)

8. The product of two numbers is 25 5/6. If one of the numbers is 6 2/3, find the other.

Solution:

Given product of two numbers is 25 5/6 = (155/6)

One of the number is $6\ 2/3 = (20/3)$
Let the other number be x
$(155/6) = x \times (20/3)$
$x = (3/20) \times (155/6)$
$x = (31/8)$
$x = 3\ 7/8$

9. The cost of $6\ 1/4$ kg of apples is Rs 400. At what rate per kg are the apples being sold?

Solution:

The cost of $6\ 1/4$ kg $= (25/4)$ of apples is Rs 400
Cost of apple per kg is $= (25/4) /400$
$= (4/25) \times 400$
= Rs 64

10. By selling oranges at the rate of Rs $5\ 1/4$ per orange, a fruit-seller gets Rs 630. How many dozens of oranges does he sell?

Solution:

Given cost of 1 orange is Rs $5\ 1/4 = (21/4)$
He got Rs 630 by selling the oranges
Number of dozens of oranges sold by him for Rs 630 is $= (4/21) \times 630$
= 120 apples
But we know that 1 dozen = 12
120 apples means 10 dozens

11. In mid-day meal scheme (3/10) liter of milk is given to each student of a primary school. If 30 liters of milk is distributed every day in the school, how many students are there in the school?

Solution:

Given (3/10) liter of milk is given to each student
Number of student given (3/10) liter of milk = 1
Number of students giving 1 liter of milk = (10/3)
Numbers of students giving 30 liters of milk $= (10/3) \times 30 = 100$ students

12. In a charity show Rs 6496 were collected by selling some tickets. If the price of each ticket was Rs 50 3/4, how many tickets were sold?

Solution:

Given amount collected by selling tickets = Rs 6496

The price of each ticket is = 50 3/4 = (203/4)

Number of ticket bought at Rs (203/4) = 1

Number of tickets bought for Rs 6496 is = (4/203) × 6496

= 4 × 32

= 128 tickets