EXERCISE 2.2

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1. Multiply:
(i) (7/11) by (3/5)
(ii) (3/5) by 25
(iii) 3 (4/15) by 24
(iv) 3 (1/8) by 4 (10/11)

Solution:
(i) Given (7/11) by (3/5)
We have to multiply the given number
(7/11) × (3/5) = (21/55)

(ii) Given (3/5) by 25
(3/5) × 25 = 15 [dividing 25 by 5]

(iii) Given 3 (4/15) by 24
First convert the given mixed fraction to improper fraction.
(49/15) × 24 = (1176/24)
= 78 (2/5)

(iv) Given 3 (1/8) by 4 (10/11)
First convert the given mixed fraction to improper fraction.
(25/8) × (54/11) = (1350/88) = (675/44)
= 15 (15/44)

2. Find the product:
(i) (4/7) × (14/25)
(ii) 7 (1/2) × 2 (4/15)
(iii) 3 (6/7) × 4 (2/3)
(iv) 6 (11/14) × 3 (1/2)

Solution:
(i) Given (4/7) × (14/25)
(4/7) × (14/25) = (4 × 14)/ (7 × 25)
= (56/175)
Converting above fractions into simplest form

= (8/25)

(ii) Given 7 (1/2) × 2 (4/15)
We have convert mixed fractions into improper fractions
Then we get (15/2) and (34/15)
= 7 (1/2) × 2 (4/15) = (15/2) × (34/15)
= (15 × 34)/ (2 × 15)
= (510/30)
= 17

(iii) Given 3 (6/7) × 4 (2/3)
We have convert mixed fractions into improper fractions
Then we get (27/7) and (14/3)
= 3 (6/7) × 4 (2/3) = (27/7) × (14/3)
On simplifying
= 9 × 2
= 18

(iv) Given 6 (11/14) × 3 (1/2)
We have convert mixed fractions into improper fractions
Then we get (95/14) and (7/2)
6 (11/14) × 3 (1/2) = (95/14) × (7/2)
= (95 × 7)/28
= (665/28)
= 23 (3/4)

3. Simplify:
(i) (12/25) × (15/28) × (35/36)
(ii) (10/27) × (39/56) × (28/65)
(iii) 2 (2/17) × 7 (2/9) × 1 (33/52)

Solution:
(i) Given (12/25) × (15/28) × (35/36)
= (12 × 15 × 35)/ (25 × 28 × 36)
= (6300/25200)
On simplifying we get
= (1/4)

(ii) Given (10/27) × (39/56) × (28/65)
= (10 × 39 × 28)/ (27 × 56 × 65)
= (10900/98280)
On simplifying we get
= (1/9)

(iii) Given 2 (2/17) × 7 (2/9) × 1 (33/52)
First convert the given mixed fraction into improper fraction then we get
= (36/17) × (65/9) × (85/52)
= (36 × 65 × 85)/ (17 × 9 × 52)
= (198900/7956)
On simplifying we get
= 25

4. Find:
(i) (1/2) of 4 (2/9)
(ii) (5/8) of 9 (2/3)
(iii) (2/3) of (9/16)

Solution:
(i) Given (1/2) of 4 (2/9)
First convert given mixed fraction into improper fraction then we get (38/9)
= (1/2) × (38/9)
= (1 × 38)/ (2 × 9)
= (38 /18)
= 2 (1/9)

(ii) Given (5/8) of 9 (2/3)
First convert given mixed fraction into improper fraction then we get (29/3)
= (5/8) × (29/3)
= (5 × 29)/ (8 × 3)
= (145 /24)
= 6 (1/24)

(iii) Given (2/3) of (9/16)
= (2/3) × (9/16)
= (2 × 9)/ (3 × 16)

= (18 /48)
= (3/8)

5. Which is greater? (1/2) of (6/7) or (2/3) of (3/7)

Solution:
Given (1/2) of (6/7)
= (1/2) × (6/7)
= (1 × 6)/ (2 × 7)
= (6 /14)
Also given that (2/3) of (3/7)
= (2/3) × (3/7)
= (2 × 3)/ (3 × 7)
= (6 /21)
While comparing two fractions, if numerators of both the fractions is same, then the denominator having higher value shows the fraction has lower value.
Therefore (6/14) is greater.
Hence (1/2) of (6/7) is greater.

6. Find:
(i) (7/11) of Rs 330
(ii) (5/9) of 108 meters
(iii) (3/7) of 42 liters
(iv) (1/12) of an hour
(v) (5/6) of an year
(vi) (3/20) of a kg
(vii) (7/20) of a liter
(viii) (5/6) of a day
(ix) (2/7) of a week

Solution:
(i) Given (7/11) of Rs 330
= (7/11) × 330
On dividing by 11 we get
= 7 × 30
= 210
(7/11) of Rs 330 is Rs 210

(ii) Given (5/9) of 108 meters
= (5/9) × 108
Dividing 108 by 9 we get
= 5 × 12
= 60
(5/9) of 108 meters is 60 meters

(iii) Given (3/7) of 42 liters
= (3/7) × 42
Dividing 42 by 7 we get
= 3 × 6
= 18
(3/7) of 42 liters is 18 liters

(iv) Given (1/12) of an hour
An hour = 60 minutes
= (1/12) × 60
Dividing 60 by 12 we get
= 1 × 5
= 5
(1/12) of an hour is 5 minutes

(v) Given (5/6) of an year
1 year = 12 months
= (5/6) × 12
Dividing 12 by 6 we get
= 5 × 2
= 10
(5/6) of an year is 10 months

(vi) Given (3/20) of a kg
1 kg = 1000 grams
= (3/20) × 1000
= 3 × 50
= 150
(3/20) of a kg is 150 grams

(vii) Given (7/20) of a liter
1 liter = 1000 ml
= (7/20) × 1000
= 7 × 50
= 350
(7/20) of a liter is 350ml

(viii) Given (5/6) of a day
1 day = 24 hours
= (5/6) × 24
= 5 × 4
= 20
(5/6) of a day is 20 hours

(ix) Given (2/7) of a week
1 week = 7 days
= (2/7) × 7
= 2 × 1
= 2
(2/7) of a week is 2 days

7. Shikha plants 5 saplings in a row in her garden. The distance between two adjacent saplings is ¾ m. Find the distance between the first and the last sapling.

Solution:
Given that the distance between two adjacent saplings is (3/4) m
There are 4 adjacent spacing for 5 sapling
Therefore, distance between the first and the last sapling is
= (3/4) × 4
= 3
The distance between them is 3m

8. Ravish reads (1/3) part of a book in 1 hour. How much part of the book will he read in 2 (1/5) hours?

Solution:
Given Ravish takes 1 hour to read (1/3) part of the book

Then we have to calculate how much part he will read in 2 (1/5) hours
First convert the given mixed fraction into improper fractions is (11/5)
Now let x be the full part of book
1 hour = (1/3) x
Remaining part of the book, he will read in
= (11/5) × (1/3) x
= (11/5) part of the book

9. Lipika reads a book for 1 (3/4) hours every day. She reads the entire book in 6 days. How many hours in all were required by her to read the book?

Solution:
Given time taken by Lipika to read a book per day = 1 (3/4) = (7/4) hours
Time taken by Lipika to read for book in 6 days = (7/4) × 6
= (42/4)
= 10 ½ hours

10. Find the area of a rectangular park which is 41 (2/3) m along and 18 (3/5) m broad.

Solution:
Given length of rectangular park is = 41 (2/3) = (145/3)
Breadth of rectangular park is = 18 (3/5) = (93/5)
Area of rectangular park = length × breadth
= (145/3) × (93/5)
= (145 × 93)/15
= (11625/15)
= 775 m^2

11. If milk is available at Rs 17 (3/4) per liter, find the cost of 7 (2/5) liters of milk.

Solution:
Given the cost of milk per liter is = 17(3/4) = Rs (71/4)
And the cost of 7 (2/5) = (37/5) is
= (37/ 5) × (71/4)
= (37 × 71)/20
= (2327/20)
= Rs 131 (7/20)

12. Sharada can walk 8 (1/3) km in one hour. How much distance will she cover in 2 (2/5) hours?

Solution:
Given distance covered by Sharada in one hour = 8 (1/3) = (25/3) km
Distance covered by her in 2 (2/5) hours = (12/5) is
= (25/3) × (12/5)
= (25 × 12)/15
= (300/15)
= 20 km

13. A sugar bag contains 30kg of sugar. After consuming (2/3) of it, how much sugar is left in the bag?

Solution:
A sugar bag contains 30kg of sugar.
After consuming, the left sugar in the bag is = 30- (2/3) × 30
= 30 - 2 × 10
= 30 – 20
= 10kg

14. Each side of a square is 6 (2/3) m long. Find it area.

Solution:
Side of a square = 6 (2/3) = (20/3) m
Area of square = side × side
= (20/3) × (20/3)
= (400/9)
=44 (4/9) m^2

15. There are 45 students in a class and (3/5) of them are boys. How many girls are there in the class?

Solution:
Total number of students = 45
Number of boys out of 45 is = (3/5)
Number of girls = 45 – (3/5) × 45

= 45 – 3 × 9
= 45 – 27
= 18 girls