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1. Find:

(i) ¼ of (a) ¼ (b) 3/5 (c) 4/3

Solution:-

(a) ¼

We have,

= ¼ × ¼

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= ¼ × ¼

= (1 × 1)/ (4 × 4)

= (1/16)

(b) 3/5

We have,

= ¼ × (3/5)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= ¼ × (3/5)

= (1 × 3)/ (4 × 5)

= (3/20)

(c) (4/3)

We have,

= ¼ × (4/3)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= ¼ × (4/3)

= (1 × 4)/ (4 × 3)

= (4/12)

= 1/3

(ii) 1/7 of (a) 2/9 (b) 6/5 (c) 3/10

Solution:-

(a) 2/9

We have,

= (1/7) × (2/9)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (1/7) × (2/9)

= (1 × 2)/ (7 × 9)

= (2/63)

(b) 6/5

We have,

= (1/7) × (6/5)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (1/7) × (6/5)

= (1 × 6)/ (7 × 5)

= (6/35)

(c) 3/10

We have,

= (1/7) × (3/10)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (1/7) × (3/10)

= (1 × 3)/ (7 × 10)

= (3/70)

2. Multiply and reduce to lowest form (if possible):

(i) (2/3) × $2\frac{2}{3}$

Solution:-

First convert the given mixed fraction into improper fraction.

= $2\frac{2}{3}$ = 8/3

Now,

= (2/3) × (8/3)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2 × 8)/ (3 × 3)

= (16/9)

= $1\frac{7}{9}$

(ii) (2/7) × (7/9)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2 × 7)/ (7 × 9)

= (2 × 1)/ (1 × 9)

= (2/9)

(iii) (3/8) × (6/4)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (3 × 6)/ (8 × 4)

= (3 × 3)/ (4 × 4)

= (9/16)

(iv) (9/5) × (3/5)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (9 × 3)/ (5 × 5)

= (27/25)

= $1\frac{2}{25}$

(v) (1/3) × (15/8)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (1 × 15)/ (3 × 8)

= (1 × 5)/ (1 × 8)

= (5/8)

(vi) (11/2) × (3/10)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (11 × 3)/ (2 × 10)

= (33/20)

= $1\frac{13}{20}$

(vii) (4/5) × (12/7)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (4 × 12)/ (5 × 7)

= (48/35)

= $1\frac{13}{35}$

3. Multiply the following fractions:

(i) (2/5) × 5 ¼

Solution:-

First convert the given mixed fraction into improper fraction.

= 5 ¼ = 21/4

Now,

= (2/5) × (21/4)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2 × 21)/ (5 × 4)
= (1 × 21)/ (5 × 2)
= (21/10)
= $2\frac{1}{10}$

(ii) $6\frac{2}{5}$ **× (7/9)**

Solution:-

First convert the given mixed fraction into improper fraction.

= $6\frac{2}{5}$ = 32/5

Now,

= (32/5) × (7/9)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (32 × 7)/ (5 × 9)
= (224/45)
= $4\frac{44}{45}$

(iii) (3/2) × $5\frac{1}{3}$

Solution:-

First convert the given mixed fraction into improper fraction.

= $5\frac{1}{3}$ = 16/3

Now,

= (3/2) × (16/3)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (3 × 16)/ (2 × 3)
= (1 × 8)/ (1 × 1)
= 8

(iv) (5/6) × $2\frac{3}{7}$

Solution:-

First convert the given mixed fraction into improper fraction.

$= 2\frac{3}{7}$ = 17/7

Now,

= (5/6) × (17/7)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (5 × 17)/ (6 × 7)

= (85/42)

$= 2\frac{1}{42}$

(v) $3\frac{2}{5}$ **× (4/7)**

Solution:-

First convert the given mixed fraction into improper fraction.

$= 3\frac{2}{5}$ = 17/5

Now,

= (17/5) × (4/7)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (17 × 4)/ (5 × 7)

= (68/35)

$= 1\frac{33}{35}$

(vi) $2\frac{3}{5}$ **× 3**

Solution:-

First convert the given mixed fraction into improper fraction.

$= 2\frac{3}{5}$ = 13/5

Now,

= (13/5) × (3/1)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (13 × 3)/ (5 × 1)

= (39/5)

$= 7\frac{4}{5}$

(vi) $3\frac{4}{7}$ **× (3/5)**

Solution:-

First convert the given mixed fraction into improper fraction.

$= 3\frac{4}{7}$ = 25/7

Now,

= (25/7) × (3/5)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (25 × 3)/ (7 × 5)

= (5 × 3)/ (7 × 1)

= (15/7)

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

4. Which is greater:

(i) (2/7) of (3/4) or (3/5) of (5/8)

Solution:-

We have,

= (2/7) × (3/4) and (3/5) × (5/8)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2/7) × (3/4)

= (2 × 3)/ (7 × 4)

= (1 × 3)/ (7 × 2)

= (3/14) … [i]

And,

= (3/5) × (5/8)

= (3 × 5)/ (5 × 8)

= (3 × 1)/ (1 × 8)

= (3/8) … [ii]

Now, convert [i] and [ii] into like fractions,
LCM of 14 and 8 is 56
Now, let us change each of the given fraction into an equivalent fraction having 56 as the denominator.

[(3/14) × (4/4)] = (12/56)
[(3/8) × (7/7)] = (21/56)

Clearly,

(12/56) < (21/56)

Hence,

(3/14) < (3/8)

(ii) (1/2) of (6/7) or (2/3) of (3/7)

Solution:-

We have,

= (1/2) × (6/7) and (2/3) × (3/7)

By the rule Multiplication of fraction,
Product of fraction = (product of numerator)/ (product of denominator)
Then,

= (1/2) × (6/7)
= (1 × 6)/ (2 × 7)
= (1 × 3)/ (1 × 7)
= (3/7) … [i]

And,

= (2/3) × (3/7)
= (2 × 3)/ (3 × 7)
= (2 × 1)/ (1 × 7)
= (2/7) … [ii]

By comparing [i] and [ii],
Clearly,

(3/7) < (2/7)

5. Saili plants 4 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:-

From the question, it is given that,
The distance between two adjacent saplings = ¾ m
Number of saplings planted by Saili in a row = 4

Then, number of gap in saplings = ¾ × 4
= 3
∴The distance between the first and the last saplings = 3 × ¾
= (9/4) m
= 2 ¼ m
Hence, the distance between the first and the last saplings is 2 ¼ m.

6. Lipika reads a book for 1 ¾ 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:-
From the question, it is given that,
Lipika reads the book for = 1 ¾ hours every day = 7/4 hours
Number of days she took to read the entire book = 6 days
∴Total number of hours required by her to complete the book = (7/4) × 6
= (7/2) × 3
= 21/2
= 10 ½ hours
Hence, the total number of hours required by her to complete the book is 10 ½ hours.

7. A car runs 16 km using 1 litre of petrol. How much distance will it cover using 2 ¾ litres of petrol.
Solution:-
From the question, it is given that,
The total number of distance travelled by a car in 1 liter of petrol = 16 km
Then,
Total quantity of petrol = 2 ¾ liter = 11/4 liters
Total number of distance travelled by car in 11/4 liters of petrol = (11/4) × 16
= 11 × 4
= 44 km
∴Total number of distance travelled by car in 11/4 liters of petrol is 44 km.

8. (a) (i) provide the number in the box [ ], such that (2/3) × [ ] = (10/30)
Solution:-
Let the required number be x,
Then,
= (2/3) × (x) = (10/30)
By cross multiplication,

= x = (10/30) × (3/2)
= x = (10 × 3) / (30 × 2)
= x = (5 × 1) / (10 × 1)
= x = 5/10
∴The required number in the box is (5/20)

(ii) The simplest form of the number obtained in [ ] is
Solution:-
The number in the box is 5/10
Then,
The simplest form of 5/10 is ½

(b) (i) provide the number in the box [ ], such that (3/5) × [ ] = (24/75)
Solution:-
Let the required number be x,
Then,
= (3/5) × (x) = (24/75)
By cross multiplication,
= x = (24/75) × (5/3)
= x = (24 × 5) / (75 × 3)
= x = (8 × 1) / (15 × 1)
= x = 8/15
∴The required number in the box is (8/15)

(ii) The simplest form of the number obtained in [ ] is
Solution:-
The number in the box is 8/15
Then,
The simplest form of 8/15 is 8/15