पु•ना International School

Shree Swaminarayan Gurukul, Zundal

MATHEMATICS

GRADE VI I

SPECIMEN COPY

2022 -23

INDEX

Chapter No.	Name
Chapter 1	Integers
Chapter 2	Fractions And Decimals
Chapter 3	Data Handling Playing
Chapter 4	Simple Equation
Chapter 5	Lines and angles
Chapter 6	The triangles and its properties
Chapter 7	Congruence of triangles
Chapter 8	Comparing quantities
Chapter 9	Rational numbers
Chapter 10	Practical Geometrical
Chapter 11	Perimeter and area
Chapter 12	Algebraic expression

Chapter 13	**Exponents and powers**
Chapter 14	**Symmetry**
Chapter 15	**Visualising of solid shapes**

Chapter 1 INTEGERS

Key points to remember

1) Integers are bigger collection of numbers which is formed by whole numbers and their negatives.

2) Properties of addition and subtraction

(a) Integers are closed for addition and subtraction both that is**, a + b** and **a – b** are again Integers, where **a** and **b** are any integers.
(b) Addition is commutative for integers ,i.e., **a + b = b + a** for all integers **a and b.**
(c) Addition is associative for integers ,i.e. **(a + b) + c = a + (b + c)** for all integers **a, b and c**
(d) Integer **0** is the identity under addition . That is , **a + 0 = 0 + a = a** for every integer **a.**

3) **Product of a positive and a negative integer is a negative integer**. Whereas the products of two negative integers is a positive integer. For example **– 2 × 7 = - 14 and – 3 × - 8 = 24**
4) **Product of even number of negative integer is positive** , whereas , the product of odd number of integers is negative. 5) Properties of integers under multiplication.

- **(A)** Integers are closed under multiplication. That is **a × b** is an integer for any two integers a and b.

(B)Multiplication is commutative for integers . That is **a × b = b × a** for any integers **a and b.**

(C) The integer 1 is the identity under multiplication**, i.e., 1 × a = a × 1 = a** for any integer **a.**

(D) Multiplication is associative for integers , i.e., **(a × b) × c = a × (b × c)** for any three integers **a , b and c**

(E) Under addition and multiplication integers show a property called **distributive property ,**that is **a × (b + c) = a × b + a × c** for any three integers **a, b and c .**

6) The properties commutativity, associativity under addition and multiplication and distributive property help us to make our calculations easier.

(a) When a positive integer is divided by a negative integer the quotient obtained is a negative

Integer and vice – versa

(b) Division of a negative integer by another negative integer gives a positive integer as quotient.

For any integer **a** we have

(c) **a ÷ 0** is not defined **(d)** a ÷ 1 = a

7) 1 Fill in the blanks using < or >.

(a) -3 …… -4
(b) 6 ……. -20
(c) -8 …… -2
(d) 5 …… -7 Solution :

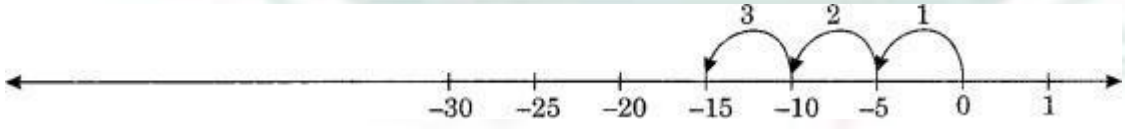
(a) -3 > -4
(b) 6 > -20
(c) -8 < -2
(d) 5 > -7

2. Very short answers:

Using number line, find:

(i) 3 × (-5)
(ii) 8 × (-2) Solution**:**

(i) 3 × (-5)

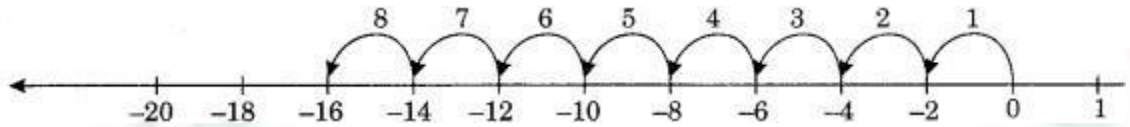


From the number line, we have

(-5) + (-5) + (-5) = 3 ×

(-5) = -15

(ii) 8 × (-2)



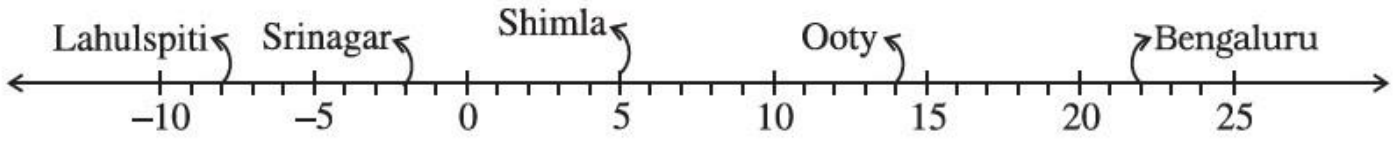
From the number line, we have

(-2) + (-2) + (-2) + (-2) + (-2) + (-2) + (-2) + (-2) = 8 × (-2) = -16

Exercise 1.1

PAGE NO: 4

1. Following number line shows the temperature in degree celsius (c^o) at different places on a particular day.



(a) Observe this number line and write the temperature of the places marked on it.

Solution:-

By observing the number line, we can find the temperature of the cities as follows,

Temperature at the Lahulspiti is -8°C

Temperature at the Srinagar is -2°C

Temperature at the Shimla is 5°C

Temperature at the Ooty is 14°C

Temperature at the Bengaluru is 22°C

(b) What is the temperature difference between the hottest and the coldest places among the above?

Solution:-

From the number line we observe that,

The temperature at the hottest place i.e., Bengaluru is 22°C

The temperature at the coldest place i.e., Lahulspiti is -8°C

Temperature difference between hottest and coldest place is = 22°C – (-8°C)

= 22°C + 8°C

= 30°C

Hence, the temperature difference between the hottest and the coldest place is 30°C. **(c) What is the temperature difference between Lahulspiti and Srinagar?**

Solution:-

From the given number line,

The temperature at the Lahulspiti is -8^oC

The temperature at the Srinagar is -2^oC

∴The temperature difference between Lahulspiti and Srinagar is = $-2^oC - (8^oC)$

$= -2^OC + 8^oC$

$= 6^oC$

(d) Can we say temperature of Srinagar and Shimla taken together is less than the temperature at Shimla? Is it also less than the temperature at Srinagar?

Solution:-

From the given number line,

The temperature at Srinagar =-2^oC

The temperature at Shimla = 5^oC

The temperature of Srinagar and Shimla taken together is = $-2^oC + 5^oC$

$= 3^oC$

$\therefore 5^oC > 3^oC$

So, the temperature of Srinagar and Shimla taken together is less than the temperature at Shimla.

Then,

$3^o > -2^o$

No, the temperature of Srinagar and Shimla taken together is not less than the temperature of Srinagar.

2. In a quiz, positive marks are given for correct answers and negative marks are given for incorrect answers. If Jack's scores in five successive rounds were 25, – 5, – 10, 15 and 10, what was his total at the end?

Solution:- From the question,

Jack's score in five successive rounds are 25, -5, -10, 15 and 10

The total score of Jack at the end will be = 25 + (-5) + (-10) + 15 + 10

= 25 – 5 – 10 + 15 + 10

= 50 – 15

= 35

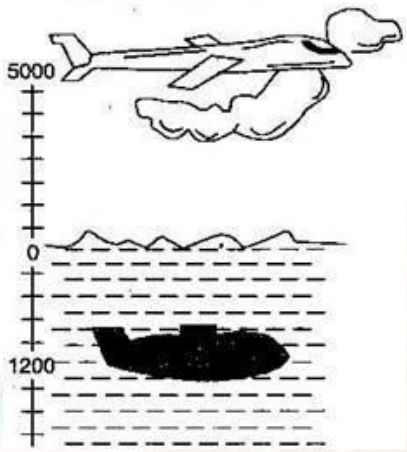
∴Jack's total score at the end is 35.

3. At Srinagar temperature was – 5°C on Monday and then it dropped by 2°C on Tuesday. What was the temperature of Srinagar on Tuesday? On Wednesday, it rose by 4°C. What was the temperature on this day?

Solution:- From the question,

Temperature on Monday at Srinagar = -5°C
Temperature on Tuesday at Srinagar is dropped by 2°C = Temperature on Monday – 2°C
= -5°C – 2°C =
-7°C
Temperature on Wednesday at Srinagar is rose by 4°C = Temperature on Tuesday + 4°C
= -7°C + 4°C =
-3°C
Thus, the temperature on Tuesday and Wednesday was -7°C and -3°C respectively.

4. A plane is flying at the height of 5000 m above the sea level. At a particular point, it is exactly above a submarine floating 1200 m below the sea level. What is the vertical distance between them?



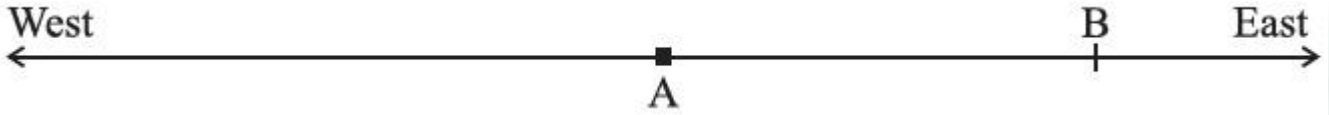
Solution:- From
the question,
Plane is flying at the height = 5000 m
Depth of Submarine = -1200 m
The vertical distance between plane and submarine = 5000 m – (- 1200) m
= 5000 m + 1200 m =
6200 m

5. Mohan deposits ₹ 2,000 in his bank account and withdraws ₹ 1,642 from it, the next day. If withdrawal of amount from the account is represented by a negative integer, then how will you represent the amount deposited? Find the balance in Mohan's account after the withdrawal.

Solution:-
Withdrawal of amount from the account is represented by a negative integer.
Then, deposit of amount to the account is represented by a positive integer. From
the question,
Total amount deposited in bank account by the Mohan = ₹ 2000
Total amount withdrawn from the bank account by the Mohan = – ₹ 1642

Balance in Mohan's account after the withdrawal = amount deposited + amount withdrawn = ₹ 2000 + (-₹ 1642)
= ₹ 2000 – ₹ 1642
= ₹ 358
Hence, the balance in Mohan's account after the withdrawal is ₹ 358

6. Rita goes 20 km towards east from a point A to the point B. From B, she moves 30 km towards west along the same road. If the distance towards east is represented by a positive integer then, how will you represent the distance travelled towards west? By which integer will you represent her final position from A?



Solution:-
From the question, it is given that
A positive integer represents the distance towards the east.
Then, distance travelled towards the west will be represented by a negative integer.
Rita travels a distance in east direction = 20 km
Rita travels a distance in west direction = – 30 km ∴
Distance travelled from A = 20 + (- 30)
= 20 – 30
= -10 km
Hence, we will represent the distance travelled by Rita from point A by a negative integer, i.e. – 10 km

7. In a magic square each row, column and diagonal have the same sum. Check which of the following is a magic square

5	–1	– 4
–5	–2	7
0	3	–3

(i)

1	–10	0
– 4	–3	–2
– 6	4	–7

(ii)

Solution:-
First we consider the square (i)
By adding the numbers in each rows we get,
= 5 + (- 1) + (- 4) = 5 – 1 – 4 = 5 – 5 = 0
= -5 + (-2) + 7 = – 5 – 2 + 7 = -7 + 7 = 0

= 0 + 3 + (-3) = 3 – 3 = 0
By adding the numbers in each columns we get,
= 5 + (- 5) + 0 = 5 – 5 = 0
= (-1) + (-2) + 3 = -1 – 2 + 3 = -3 + 3 = 0
= -4 + 7 + (-3) = -4 + 7 – 3 = -7 + 7 = 0
By adding the numbers in diagonals we get,
= 5 + (-2) + (-3) = 5 – 2 – 3 = 5 – 5 = 0
= -4 + (-2) + 0 = – 4 – 2 = -6
Because sum of one diagonal is not equal to zero,
So, (i) is not a magic square
Now, we consider the square (ii)
By adding the numbers in each rows we get,
= 1 + (-10) + 0 = 1 – 10 + 0 = -9
= (-4) + (-3) + (-2) = -4 – 3 – 2 = -9
= (-6) + 4 + (-7) = -6 + 4 – 7 = -13 + 4 = -9
By adding the numbers in each columns we get,
= 1 + (-4) + (-6) = 1 – 4 – 6 = 1 – 10 = -9
= (-10) + (-3) + 4 = -10 – 3 + 4 = -13 + 4
= 0 + (-2) + (-7) = 0 – 2 – 7 = -9
By adding the numbers in diagonals we get,
= 1 + (-3) + (-7) = 1 – 3 – 7 = 1 – 10 = -9
= 0 + (-3) + (-6) = 0 – 3 – 6 = -9
This (ii) square is a magic square, because sum of each row, each column and diagonal is equal to -9.

8. Verify a – (– b) = a + b for the following values of a and b.

(i) a = 21, b = 18

Solution:- From the question, a = 21 and b = 18

To verify a – (- b) = a + b

Let us take Left Hand Side (LHS) = a – (- b)

= 21 – (- 18)

= 21 + 18

= 39

Now, Right Hand Side (RHS) = a + b

= 21 + 18

= 39

By comparing LHS and RHS
LHS = RHS
39 = 39
Hence, the value of a and b is verified.

(ii) a = 118, b = 125

Solution:- From the question, a = 118 and b = 125 To verify a – (- b) = a + b

Let us take Left Hand Side (LHS) = a – (- b)
= 118 – (- 125)
= 118 + 125
= 243
Now, Right Hand Side (RHS) = a + b
= 118 + 125
= 243
By comparing LHS and RHS
LHS = RHS
243 = 243
Hence, the value of a and b is verified.

(iii) a = 75, b = 84

Solution:-

From the question, a = 75 and b = 84 To verify a – (- b) = a + b

Let us take Left Hand Side (LHS) = a – (- b)
= 75 – (- 84)
= 75 + 84
= 159
Now, Right Hand Side (RHS) = a + b
= 75 + 84
= 159
By comparing LHS and RHS
LHS = RHS
159 = 159
Hence, the value of a and b is verified.

(iv) a = 28, b = 11

Solution:- From the question, a = 28 and b = 11 To verify a – (- b) = a + b

Let us take Left Hand Side (LHS) = a – (- b)

= 28 – (- 11)

= 28 + 11

= 39

Now, Right Hand Side (RHS) = a + b

= 28 + 11

= 39

By comparing LHS and RHS

LHS = RHS

39 = 39

Hence, the value of a and b is verified.

9. Use the sign of >, < or = in the box to make the statements true.

(a) (-8) + (-4) [ ] (-8) – (-4)

Solution:-

Let us take Left Hand Side (LHS) = (-8) + (-4)

= -8 – 4

= -12

Now, Right Hand Side (RHS) = (-8) – (-4)

= -8 + 4

= -4

By comparing LHS and RHS

LHS < RHS

-12 < -4

∴ (-8) + (-4) [<] (-8) – (-4)

(b) (-3) + 7 – (19) [ ] 15 – 8 + (-9)

Solution:-

Let us take Left Hand Side (LHS) = (-3) + 7 – 19

= -3 + 7 – 19

= -22 + 7

= -15

Now, Right Hand Side (RHS) = 15 – 8 + (-9)

= 15 – 8 – 9

= 15 – 17

= -2

By comparing LHS and RHS
LHS < RHS
-15 < -2
∴ (-3) + 7 – (19) [<] 15 – 8 + (-9)

(c) 23 – 41 + 11 [ ] 23 – 41 – 11
Solution:-
Let us take Left Hand Side (LHS) = 23 – 41 + 11
= 34 – 41
= – 7
Now, Right Hand Side (RHS) = 23 – 41 – 11
= 23 – 52
= – 29
By comparing LHS and RHS
LHS > RHS
– 7 > -29
∴ 23 – 41 + 11 [>] 23 – 41 – 11
(d) 39 + (-24) – (15) [ ] 36 + (-52) – (- 36)
Solution:-
Let us take Left Hand Side (LHS) = 39 + (-24) – 15
= 39 – 24 – 15
= 39 – 39
= 0
Now, Right Hand Side (RHS) = 36 + (-52) – (- 36)
= 36 – 52 + 36
= 72 – 52
= 20
By comparing LHS and RHS
LHS < RHS
0 < 20
∴ 39 + (-24) – (15) [<] 36 + (-52) – (- 36)
(e) – 231 + 79 + 51 [ ] -399 + 159 + 81
Solution:-
Let us take Left Hand Side (LHS) = – 231 + 79 + 51
= – 231 + 130
= -101
Now, Right Hand Side (RHS) = – 399 + 159 + 81
= – 399 + 240

= – 159
By comparing LHS and RHS
LHS > RHS
-101 > -159
∴ – 231 + 79 + 51 [>] -399 + 159 + 81

10. A water tank has steps inside it. A monkey is sitting on the topmost step (i.e., the first step). The water level is at the ninth step.

(i) He jumps 3 steps down and then jumps back 2 steps up. In how many jumps will he reach the water level? Solution:-
Let us consider steps moved down are represented by positive integers and then, steps moved up are represented by negative integers.
Initially monkey is sitting on the top most step i.e., first step
In 1^{st} jump monkey will be at step = 1 + 3 = 4 steps
In 2^{nd} jump monkey will be at step = 4 + (-2) = 4 – 2 = 2 steps
In 3^{rd} jump monkey will be at step = 2 + 3 = 5 steps
In 4^{th} jump monkey will be at step = 5 + (-2) = 5 – 2 = 3 steps
In 5^{th} jump monkey will be at step = 3 + 3 = 6 steps
In 6^{th} jump monkey will be at step = 6 + (-2) = 6 – 2 = 4 steps
In 7^{th} jump monkey will be at step = 4 + 3 = 7 steps
In 8^{th} jump monkey will be at step = 7 + (-2) = 7 – 2 = 5 steps
In 9^{th} jump monkey will be at step = 5 + 3 = 8 steps
In 10^{th} jump monkey will be at step = 8 + (-2) = 8 – 2 = 6 steps
In 11^{th} jump monkey will be at step = 6 + 3 = 9 steps

∴Monkey took 11 jumps (i.e., 9th step) to reach the water level

(ii) After drinking water, he wants to go back. For this, he jumps 4 steps up and then jumps back 2 steps down in every move. In how many jumps will he reach back the top step? Solution:-

Let us consider steps moved down are represented by positive integers and then, steps moved up are represented by negative integers.

Initially monkey is sitting on the ninth step i.e., at the water level

In 1st jump monkey will be at step = 9 + (-4) = 9 – 4 = 5 steps

In 2nd jump monkey will be at step = 5 + 2 = 7 steps

In 3rd jump monkey will be at step = 7 + (-4) = 7 – 4 = 3 steps

In 4th jump monkey will be at step = 3 + 2 = 5 steps

In 5th jump monkey will be at step = 5 + (-4) = 5 – 4 = 1 step ∴

Monkey took 5 jumps to reach back the top step i.e., first step.

(iii) If the number of steps moved down is represented by negative integers and the number of steps moved up by positive integers, represent his moves in part (i) and (ii) by completing the following; (a) – 3 + 2 – … = – 8 (b) 4 – 2 + … = 8. In (a) the sum (– 8) represents going down by eight steps. So, what will the sum 8 in (b) represent?

Solution:-

From the question, it is given that

If the number of steps moved down is represented by negative integers and the number of steps moved up by positive integers.

Monkey moves in part (i) =

– 3 + 2 – …….. = – 8

Then LHS = – 3 + 2 – 3 + 2 – 3 + 2 – 3 + 2 – 3 + 2 – 3

= – 18 + 10

= – 8

RHS = -8

∴Moves in part (i) represents monkey is going down 8 steps. Because negative integer.

Now,

Monkey moves in part (ii)

= 4 – 2 + …….. = 8

Then LHS = 4 – 2 + 4 – 2 + 4

= 12 – 4

= 8

RHS = 8

∴Moves in part (ii) represents monkey is going up 8 steps. Because positive integer.

Exercise 1.2
PAGE NO: 9

1. Write down a pair of integers whose:
(a) sum is -7
Solution:- =
– 4 + (-3)
= – 4 – 3 … [∵ (+ × – = -)]
= – 7
(b) difference is – 10
Solution:- =
-25 – (-15)
= – 25 + 15 … [∵ (- × – = +)]
= -10
(c) sum is 0
Solution:-
= 4 + (-4)
= 4 – 4
= 0
2. (a) Write a pair of negative integers whose difference gives 8 Solution:-
= (-5) – (- 13)
= -5 + 13 … [∵ (- × – = +)]
= 8
(b) Write a negative integer and a positive integer whose sum is – 5. Solution:-
= -25 + 20
= -5
(c) Write a negative integer and a positive integer whose difference is – 3.
Solution:-
= – 2 – (1)
= – 2 – 1 =
– 3
3. In a quiz, team A scored – 40, 10, 0 and team B scored 10, 0, – 40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?
Solution:-
From the question, it is given that

Score of team A = -40, 10, 0
Total score obtained by team A = – 40 + 10 + 0
= – 30
Score of team B = 10, 0, -40

Total score obtained by team B = 10 + 0 + (-40)
= 10 + 0 – 40
= – 30
Thus, the score of the both A team and B team is same.
Yes, we can say that we can add integers in any order.

4. Fill in the blanks to make the following statements true:

(i) (–5) + (– 8) = (– 8) + (……)

Solution:-

Let us assume the missing integer be x,
Then,
= (–5) + (– 8) = (– 8) + (x)
= – 5 – 8 = – 8 + x
= – 13 = – 8 + x
By sending – 8 from RHS to LHS it becomes 8,
= – 13 + 8 = x
= x = – 5
Now substitute the x value in the blank place,
(–5) + (– 8) = (– 8) + (- 5) … [This equation is in the form of Commutative law of Addition]

(ii) –53 + …… = –53

Solution:-

Let us assume the missing integer be x,
Then,
= –53 + x = –53
By sending – 53 from LHS to RHS it becomes 53,
= x = -53 + 53
= x = 0
Now substitute the x value in the blank place,
= –53 + 0 = –53 … [This equation is in the form of Closure property of Addition]

(iii) 17 + …… = 0

Solution:-

Let us assume the missing integer be x,
Then,
= 17 + x = 0
By sending 17 from LHS to RHS it becomes -17,

= x = 0 – 17
= x = – 17
Now substitute the x value in the blank place,
= 17 + (-17) = 0 … [This equation is in the form of Closure property of Addition]
= 17 – 17 = 0
(iv) [13 + (– 12)] + (……) = 13 + [(–12) + (–7)]
Solution:-
Let us assume the missing integer be x, Then,
= [13 + (– 12)] + (x) = 13 + [(–12) + (–7)]
= [13 – 12] + (x) = 13 + [–12 –7]
= [1] + (x) = 13 + [-19]
= 1 + (x) = 13 – 19
= 1 + (x) = -6
By sending 1 from LHS to RHS it becomes -1,
= x = -6 – 1
= x = -7
Now substitute the x value in the blank place,
= [13 + (– 12)] + (-7) = 13 + [(–12) + (–7)] … [This equation is in the form of Associative property of Addition]
(v) (– 4) + [15 + (–3)] = [– 4 + 15] +……
Solution:-
Let us assume the missing integer be x,
Then,
= (– 4) + [15 + (–3)] = [– 4 + 15] + x
= (– 4) + [15 – 3)] = [– 4 + 15] + x
= (-4) + [12] = [11] + x
= 8 = 11 + x
By sending 11 from RHS to LHS it becomes -11,
= 8 – 11 = x
= x = -3
Now substitute the x value in the blank place,
= (– 4) + [15 + (–3)] = [– 4 + 15] + -3 … [This equation is in the form of Associative property of Addition]

Exercise 1.3 PAGE

NO: 21

1. Find each of the following products:

(a) 3 × (–1)
Solution:-
By the rule of Multiplication of integers,
= 3 × (-1)
= -3 … [∵ (+ × – = -)]
(b) (–1) × 225
Solution:-
By the rule of Multiplication of integers,
= (-1) × 225
= -225 … [∵ (- × + = -)]
(c) (–21) × (–30)
Solution:-
By the rule of Multiplication of integers,
= (-21) × (-30)
= 630 … [∵ (- × – = +)]
(d) (–316) × (–1)
Solution:-
By the rule of Multiplication of integers,
= (-316) × (-1)
= 316 … [∵ (- × – = +)]
(e) (–15) × 0 × (–18)
Solution:-
By the rule of Multiplication of integers,
= (–15) × 0 × (–18)
= 0
∵Any integer is multiplied with zero and the answer is zero itself.
(f) (–12) × (–11) × (10)
Solution:-
By the rule of Multiplication of integers,
= (–12) × (-11) × (10)
First multiply the two numbers having same sign,
= 132 × 10 … [∵ (- × – = +)]
= 1320
(g) 9 × (–3) × (– 6)
Solution:-
By the rule of Multiplication of integers,
= 9 × (-3) × (-6)
First multiply the two numbers having same sign,

= 9 × 18 … [∵ (- × – = +)]
= 162

(h) (–18) × (–5) × (– 4)

Solution:-

By the rule of Multiplication of integers,
= (-18) × (-5) × (-4)
First multiply the two numbers having same sign,
= 90 × -4 … [∵ (- × – = +)]
= – 360 … [∵ (+ × – = -)]

(i) (–1) × (–2) × (–3) × 4

Solution:-

By the rule of Multiplication of integers,
= [(–1) × (–2)] × [(–3) × 4]
= 2 × (-12) … [∵ (- × – = +), (- × + = -)]
= – 24

(j) (–3) × (–6) × (–2) × (–1)

Solution:-

By the rule of Multiplication of integers,
= [(–3) × (–6)] × [(–2) × (–1)]
First multiply the two numbers having same sign,
= 18 × 2 … [∵ (- × – = +)
= 36

2. Verify the following:

(a) 18 × [7 + (–3)] = [18 × 7] + [18 × (–3)]

Solution:-

From the given equation,
Let us consider the Left Hand Side (LHS) first = 18 × [7 + (–3)]
= 18 × [7 – 3]
= 18 × 4
= 72
Now, consider the Right Hand Side (RHS) = [18 × 7] + [18 × (–3)]
= [126] + [-54]
= 126 – 54
= 72
By comparing LHS and RHS,
72 = 72
LHS = RHS
Hence, the given equation is verified.

(b) (–21) × [(– 4) + (– 6)] = [(–21) × (– 4)] + [(–21) × (– 6)]

Solution:-

From the given equation,

Let us consider the Left Hand Side (LHS) first = (–21) × [(– 4) + (– 6)]

= (-21) × [-4 – 6]

= (-21) × [-10]

= 210

Now, consider the Right Hand Side (RHS) = [(–21) × (– 4)] + [(–21) × (– 6)] =

[84] + [126]

= 210

By comparing LHS and RHS,

210 = 210

LHS = RHS

Hence, the given equation is verified.

3. (i) For any integer a, what is (–1) × a equal to?

Solution:- =

(-1) × a = -a

Because, when we multiplied any integer a with -1, then we get additive inverse of that integer.

(ii). Determine the integer whose product with (–1) is

(a) –22

Solution:-

Now, multiply -22 with (-1), we get

= -22 × (-1) =

22

Because, when we multiplied integer -22 with -1, then we get additive inverse of that integer.

(b) 37

Solution:-

Now, multiply 37 with (-1), we get

= 37 × (-1) =

-37

Because, when we multiplied integer 37 with -1, then we get additive inverse of that integer. **(c) 0**

Solution:-

Now, multiply 0 with (-1), we get

= 0 × (-1)

= 0

Because, the product of negative integers and zero give zero only.

4. Starting from (–1) × 5, write various products showing some pattern to show (–1) × (–1) = 1.

Solution:-

The various products are,

= -1 × 5 = -5

= -1 × 4 = -4

= -1 × 3 = -3

= -1 × 2 = -2

= -1 × 1 = -1

= -1 × 0 = 0

= -1 × -1 = 1

We concluded that the product of one negative integer and one positive integer is negative integer. Then, the product of two negative integers is a positive integer.

5. Find the product, using suitable properties:

(a) 26 × (– 48) + (– 48) × (–36)

Solution:-

The given equation is in the form of Distributive law of Multiplication over Addition. = a × (b + c) = (a × b) + (a × c)

Let, a = -48, b = 26, c = -36

Now,

= 26 × (– 48) + (– 48) × (–36)

= -48 × (26 + (-36)

= -48 × (26 – 36) =

-48 × (-10)

= 480 … [∵ (- × – = +)

(b) 8 × 53 × (–125)

Solution:-

The given equation is in the form of Commutative law of Multiplication.

= a × b = b × a

Then,

= 8 × [53 × (-125)]

= 8 × [(-125) × 53]

= [8 × (-125)] × 53

= [-1000] × 53

= – 53000

(c) 15 × (–25) × (– 4) × (–10)

Solution:-

The given equation is in the form of Commutative law of Multiplication. = a × b = b × a

Then,

= 15 × [(–25) × (– 4)] × (–10)

= 15 × [100] × (–10)
= 15 × [-1000]
= – 15000

(d) (– 41) × 102 Solution:-

The given equation is in the form of Distributive law of Multiplication over Addition. = a × (b + c) = (a × b) + (a × c)
= (-41) × (100 + 2)
= (-41) × 100 + (-41) × 2
= – 4100 – 82
= – 4182

(e) 625 × (–35) + (– 625) × 65

Solution:-

The given equation is in the form of Distributive law of Multiplication over Addition. = a × (b + c) = (a × b) + (a × c)
= 625 × [(-35) + (-65)]
= 625 × [-100]
= – 62500

(f) 7 × (50 – 2) Solution:-

The given equation is in the form of Distributive law of Multiplication over Subtraction.
= a × (b – c) = (a × b) – (a × c)
= (7 × 50) – (7 × 2)
= 350 – 14
= 336

(g) (–17) × (–29) Solution:-

The given equation is in the form of Distributive law of Multiplication over Addition. = a × (b + c) = (a × b) + (a × c)
= (-17) × [-30 + 1]
= [(-17) × (-30)] + [(-17) × 1]
= [510] + [-17]
= 493

(h) (–57) × (–19) + 57 Solution:-

The given equation is in the form of Distributive law of Multiplication over Addition. = a × (b + c) = (a × b) + (a × c)
= (57 × 19) + (57 × 1)
= 57 [19 + 1]
= 57 × 20
= 1140

6. A certain freezing process requires that room temperature be lowered from 40°C at the rate of 5°C every hour. What will be the room temperature 10 hours after the process begins? Solution:-

From the question, it is given that

Let us take the lowered temperature as negative,

Initial temperature = 40°C

Change in temperature per hour = -5°C

Change in temperature after 10 hours = (-5) × 10 = -50°C

∴The final room temperature after 10 hours of freezing process = 40°C + (-50°C)

= -10°C

7. In a class test containing 10 questions, 5 marks are awarded for every correct answer and (–2) marks are awarded for every incorrect answer and 0 for questions not attempted. (i) Mohan gets four correct and six incorrect answers. What is his score?

Solution:- From the question,

Marks awarded for 1 correct answer = 5

Then,

Total marks awarded for 4 correct answer = 4 × 5 = 20

Marks awarded for 1 wrong answer = -2

Then,

Total marks awarded for 6 wrong answer = 6 × -2 = -12 ∴

Total score obtained by Mohan = 20 + (-12)

= 20 – 12

= 8

(ii) Reshma gets five correct answers and five incorrect answers, what is her score?

Solution:- From the question,

Marks awarded for 1 correct answer = 5

Then,

Total marks awarded for 5 correct answer = 5 × 5 = 25

Marks awarded for 1 wrong answer = -2

Then,

Total marks awarded for 5 wrong answer = 5 × -2 = -10 ∴

Total score obtained by Reshma = 25 + (-10)

= 25 – 10 =

15

(iii) Heena gets two correct and five incorrect answers out of seven questions she attempts. What is her score?

Solution:- From the question,

Marks awarded for 1 correct answer = 5
Then,
Total marks awarded for 2 correct answer = 2 × 5 = 10
Marks awarded for 1 wrong answer = -2
Then,
Total marks awarded for 5 wrong answer = 5 × -2 = -10
Marks awarded for questions not attempted is = 0 ∴
Total score obtained by Heena = 10 + (-10)
= 10 – 10
= 0

8. A cement company earns a profit of ₹ 8 per bag of white cement sold and a loss of ₹ 5 per bag of grey cement sold.

(a) The company sells 3,000 bags of white cement and 5,000 bags of grey cement in a month. What is its profit or loss?

Solution:-

We denote profit in positive integer and loss in negative integer,
From the question,
Cement company earns a profit on selling 1 bag of white cement = ₹ 8 per bag Then,
Cement company earns a profit on selling 3000 bags of white cement = 3000 × ₹ 8 = ₹ 24000
Loss on selling 1 bag of grey cement = – ₹ 5 per bag Then,
Loss on selling 5000 bags of grey cement = 5000 × – ₹ 5
= – ₹ 25000
Total loss or profit earned by the cement company = profit + loss
= 24000 + (-25000)
= – ₹1000
Thus, a loss of ₹ 1000 will be incurred by the company.

(b) What is the number of white cement bags it must sell to have neither profit nor loss, if the number of grey bags sold is 6,400 bags.

Solution:-

We denote profit in positive integer and loss in negative integer, From the question,
Cement company earns a profit on selling 1 bag of white cement = ₹ 8 per bag Let the number of white cement bags be x.
Then,
Cement company earns a profit on selling x bags of white cement = (x) × ₹ 8
= ₹ 8x
Loss on selling 1 bag of grey cement = – ₹ 5 per bag
Then,

Loss on selling 6400 bags of grey cement = 6400 × – ₹ 5
= – ₹ 32000
According to the question,
Company must sell to have neither profit nor loss.
= Profit + loss = 0
= 8x + (-32000) =0
By sending -32000 from LHS to RHS it becomes 32000
= 8x = 32000
= x = 32000/8
= x = 4000
Hence, the 4000 bags of white cement have neither profit nor loss.

9. Replace the blank with an integer to make it a true statement.

(a) (–3) × _____ = 27

Solution:-

Let us assume the missing integer be x,
Then,
= (–3) × (x) = 27
= x = – (27/3)
= x = -9
Let us substitute the value of x in the place of blank,
= (–3) × (-9) = 27 … [∵ (- × – = +)]

(b) 5 × _____ = –35

Solution:-

Let us assume the missing integer be x,
Then,
= (5) × (x) = -35
= x = – (-35/5)
= x = -7
Let us substitute the value of x in the place of blank,
= (5) × (-7) = -35 … [∵ (+ × – = -)]

(c) _____ × (– 8) = –56

Solution:-

Let us assume the missing integer be x,
Then,
= (x) × (-8) = -56
= x = (-56/-8)
= x = 7
Let us substitute the value of x in the place of blank,

= (7) × (-8) = -56 … [∵ (+ × – = -)]

(d) _____ × (–12) = 132

Solution:-

Let us assume the missing integer be x,

Then,

= (x) × (-12) = 132

= x = – (132/12)

= x = – 11

Let us substitute the value of x in the place of blank, =

(–11) × (-12) = 132 … [∵ (- × – = +)]

Exercise 1.4

PAGE NO: 26

1. Evaluate each of the following:

(a) (–30) ÷ 10

Solution:-

= (–30) ÷ 10

= – 3

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(b) 50 ÷ (–5)

Solution:- =

(50) ÷ (-5)

= – 10

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(c) (–36) ÷ (–9)

Solution:-

= (-36) ÷ (-9)

= 4

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

(d) (– 49) ÷ (49)

Solution:-

= (–49) ÷ 49

= – 1

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(e) 13 ÷ [(–2) + 1]

Solution:-

= 13 ÷ [(–2) + 1]

= 13 ÷ (-1)

= – 13

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(f) 0 ÷ (–12)

Solution:- =

0 ÷ (-12)

= 0

When we divide zero by a negative integer gives zero.

(g) (–31) ÷ [(–30) + (–1)]

Solution:-

= (–31) ÷ [(–30) + (–1)]

= (-31) ÷ [-30 – 1]

= (-31) ÷ (-31) =

1

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

(h) [(–36) ÷ 12] ÷ 3

Solution:-

First we have to solve the integers with in the bracket,

= [(–36) ÷ 12]

= (–36) ÷ 12

= – 3

Then,

= (-3) ÷ 3

= -1

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(i) [(– 6) + 5)] ÷ [(–2) + 1]

Solution:-

The given question can be written as,

= [-1] ÷ [-1]

= 1

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

2. Verify that a ÷ (b + c) ≠ (a ÷ b) + (a ÷ c) for each of the following values of a, b and c. (a) a = 12, b = – 4, c = 2

Solution:-

From the question, a ÷ (b + c) ≠ (a ÷ b) + (a ÷ c)

Given, a = 12, b = – 4, c = 2

Now, consider LHS = a ÷ (b + c)

= 12 ÷ (-4 + 2)

= 12 ÷ (-2) =

-6

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

Then, consider RHS = (a ÷ b) + (a ÷ c)

= (12 ÷ (-4)) + (12 ÷ 2)

= (-3) + (6)

= 3

By comparing LHS and RHS

= -6 ≠ 3 =

LHS ≠ RHS

Hence, the given values are verified.

(b) a = (–10), b = 1, c = 1

Solution:-

From the question, a ÷ (b + c) ≠ (a ÷ b) + (a ÷ c)

Given, a = (-10), b = 1, c = 1

Now, consider LHS = a ÷ (b + c)

= (-10) ÷ (1 + 1)

= (-10) ÷ (2) =

-5

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

Then, consider RHS = (a ÷ b) + (a ÷ c)

= ((-10) ÷ (1)) + ((-10) ÷ 1)

= (-10) + (-10)

= -10 – 10

= -20

By comparing LHS and RHS

= -5 ≠ -20

= LHS ≠ RHS

Hence, the given values are verified.

3. Fill in the blanks:

(a) 369 ÷ _____ = 369

Solution:-

Let us assume the missing integer be x,

Then,

= 369 ÷ x = 369

= x = (369/369)

= x = 1

Now, put the valve of x in the blank. =

369 ÷ 1 = 369

(b) (–75) ÷ _____ = –1

Solution:-

Let us assume the missing integer be x,

Then,

= (-75) ÷ x = -1

= x = (-75/-1)

= x = 75

Now, put the valve of x in the blank.

= (-75) ÷ 75 = -1

(c) (–206) ÷ _____ = 1

Solution:-

Let us assume the missing integer be x,

Then,

= (-206) ÷ x = 1

= x = (-206/1)

= x = -206

Now, put the valve of x in the blank.

= (-206) ÷ (-206) = 1

(d) – 87 ÷ _____ = 87

Solution:-

Let us assume the missing integer be x,

Then,

= (-87) ÷ x = 87

= x = (-87)/87

= x = -1

Now, put the valve of x in the blank.

= (-87) ÷ (-1) = 87

(e) _____ ÷ 1 = – 87

Solution:-

Let us assume the missing integer be x,

Then,

= (x) ÷ 1 = -87

= x = (-87) × 1

= x = -87

Now, put the valve of x in the blank.

= (-87) ÷ 1 = -87

(f) _____ ÷ 48 = –1

Solution:-

Let us assume the missing integer be x,

Then,

= (x) ÷ 48 = -1

= x = (-1) × 48

= x = -48

Now, put the valve of x in the blank.

= (-48) ÷ 48 = -1

(g) 20 ÷ _____ = –2

Solution:-

Let us assume the missing integer be x,

Then,

= 20 ÷ x = -2

= x = (20)/ (-2)

= x = -10

Now, put the valve of x in the blank.

= (20) ÷ (-10) = -2

(h) _____ ÷ (4) = –3

Solution:-

Let us assume the missing integer be x,

Then,

= (x) ÷ 4 = -3 =

x = (-3) × 4

= x = -12

Now, put the valve of x in the blank. =

(-12) ÷ 4 = -3

4. Write five pairs of integers (a, b) such that a ÷ b = –3. One such pair is (6, –2) because 6 ÷ (–2) = (–3).

Solution:-

(i) (15, -5)

Because, 15 ÷ (–5) = (–3)

(ii) (-15, 5)

Because, (-15) ÷ (5) = (–3)

(iii) (18, -6)

Because, 18 ÷ (–6) = (–3)

(iv) (-18, 6)

Because, (-18) ÷ 6 = (–3)

(v) (21, -7)

Because, 21 ÷ (–7) = (–3)

5. The temperature at 12 noon was 10°C above zero. If it decreases at the rate of 2°C per hour until midnight, at what time would the temperature be 8°C below zero? What would be the temperature at mid-night?

Solution:-

From the question is given that,

Temperature at the beginning i.e., at 12 noon = 10°C

Rate of change of temperature = – 2°C per hour

Then,

Temperature at 1 PM = 10 + (-2) = 10 – 2 = 8°C

Temperature at 2 PM = 8 + (-2) = 8 – 2 = 6°C

Temperature at 3 PM = 6 + (-2) = 6 – 2 = 4°C

Temperature at 4 PM = 4 + (-2) = 4 – 2 = 2°C

Temperature at 5 PM = 2 + (-2) = 2 – 2 = 0°C

Temperature at 6 PM = 0 + (-2) = 0 – 2 = -2°C

Temperature at 7 PM = -2 + (-2) = -2 -2 = -4°C

Temperature at 8 PM = -4 + (-2) = -4 – 2 = -6°C

Temperature at 9 PM = -6 + (-2) = -6 – 2 = -8°C

∴At 9 PM the temperature will be 8°C below zero

Then,

The temperature at mid-night i.e., at 12 AM

Change in temperature in 12 hours = -2°C × 12 = – 24°C

So, at midnight temperature will be = 10 + (-24)

= – 14°C

So, at midnight temperature will be 14°C below 0.

6. In a class test (+ 3) marks are given for every correct answer and (–2) marks are given for every incorrect answer and no marks for not attempting any question. (i) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly? (ii) Mohini scores –5 marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?

Solution:- From the question,

Marks awarded for 1 correct answer = + 3

Marks awarded for 1 wrong answer = -2

(i) Radhika scored 20 marks

Then,

Total marks awarded for 12 correct answers = 12 × 3 = 36

Marks awarded for incorrect answers = Total score – Total marks awarded for 12 correct Answers

= 20 – 36

= – 16

So, the number of incorrect answers made by Radhika = (-16) ÷ (-2) = 8

(ii) Mohini scored -5 marks

Then,

Total marks awarded for 7 correct answers = 7 × 3 = 21

Marks awarded for incorrect answers = Total score – Total marks awarded for 12 correct Answers = – 5 – 21

= – 26

So, the number of incorrect answers made by Mohini = (-26) ÷ (-2) = 13

7. An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 m above the ground level, how long will it take to reach – 350 m.

Solution:- From the question,

The initial height of the elevator = 10 m

Final depth of elevator = – 350 m … [∵distance descended is denoted by a negative integer]

The total distance to descended by the elevator = (-350) – (10)

= – 360 m

Then,

Time taken by the elevator to descend -6 m = 1 min

So, time taken by the elevator to descend – 360 m = (-360) ÷ (-60)

= 60 minutes

= 1 hour

Chapter 2 Fraction And Decimal

Key points to remember

- We have learnt about fractions and decimals along with the operations of addition and subtraction on them, in the earlier class.
- We now study the operations of multiplication and division on fractions as well as on decimals.
- We have learnt how to multiply fractions. Two fractions are multiplied by multiplying their numerators and denominators seprately and writing the product as product of numerators

by product of denominators. For example, $\frac{2}{3}\times\frac{5}{7}=\frac{2\times5}{3\times7}=\frac{10}{21}$.

- A fraction acts as an operator 'of '. For example, $\frac{1}{2}$ of 2 is $\frac{1}{2}\times2=1$.

(a) The product of two proper fractions is less than each of the fractions that are multiplied. (b) The product of a proper and an improper fraction is less than the improper fraction and greater than the proper fraction.

(c) The product of two improper fractions is greater than the two fractions.

 A reciprocal of a fraction is obtained by inverting it upside down. We have seen how to divide two fractions.

(a) While dividing a whole number by a fraction, we multiply the whole number with the reciprocal of that fraction. For example, $2 \div \frac{3}{5} = 2 \times \frac{5}{3} = 10$.

(b) While dividing a fraction by a whole number we multiply the fraction by the reciprocal of the whole number. For example, $\frac{2}{3} \div 7 = \frac{2}{3} \times \frac{1}{2} = \frac{2}{21}$.

(c) While dividing one fraction by another fraction, we multiply the first fraction by the reciprocal of the other. So, $\frac{2}{3} \div \frac{5}{7} = \frac{2}{3} \times \frac{7}{5} = \frac{14}{15}$.

- We also leant how to multiply two decimal numbers. While multiplying two decimal numbers, first multiply them as whole numbers. Count the number of digits to the right of the decimal point in both the decimal numbers. Add the number of digits counted. Put the decimal point in the product by counting the digits from its rightmost place. The count should be the sum obtained earlier. For example, $0.5 \times 0.7 = 0.35$.
- To multiply a decimal number by 10, 100 or 1000, we move the decimal point in the number to the right by as many places as there are zeros over 1. Thus, $0.53 \times 10 = 5.3$, $0.53 \times 100 = 53$, $0.53 \times 1000 = 530$.

- We have seen how to divide decimal numbers.

(a)To divide a decimal number by a whole number, we first divide them as whole numbers. Then place the decimal point in the quotient as in the decimal number. For example, $8.4 \div 4 = 2.1$.

Note that here we consider only those divisions in which the remainder is zero. (b)To divide a decimal number by 10, 100 or 1000, shift the digits in the decimal number to the left by as many places as there are zeros over 1, to get the quotient. So, $23.9 \div 10 = 2.39$, $23.9 \div 100 = 0.239$, $23.9 \div 1000 = 0.0239$.

(c) While dividing two decimal numbers, first shift the decimal point to the right by equal number of places in both, to convert the divisor to a whole number. Then divide.

Thus, $2.4 \div 0.2 = 24 \div 2 = 12$.

Exercise 2.1

PAGE NO: 12

1. Solve:

(i) 2 – (3/5)

Solution:-

For subtraction of two unlike fractions, first change them to the like fractions.

LCM of 1, 5 = 5

Now, let us change each of the given fraction into an equivalent fraction having 5 as the denominator.

= [(2/1) × (5/5)] = (10/5)

= [(3/5) × (1/1)] = (3/5)

Now,

= (10/5) – (3/5)

= [(10 – 3)/5]

= (7/5)

(ii) 4 + (7/8)

Solution:-

For addition of two unlike fractions, first change them to the like fractions.

LCM of 1, 8 = 8

Now, let us change each of the given fraction into an equivalent fraction having 8 as the denominator.

= [(4/1) × (8/8)] = (32/8)

= [(7/8) × (1/1)] = (7/8)

Now,

= (32/8) + (7/8)

= [(32 + 7)/8]

= (39/8)

$=4\frac{7}{8}$

(iii) (3/5) + (2/7)

Solution:-

For addition of two unlike fractions, first change them to the like fractions.

LCM of 5, 7 = 35

Now, let us change each of the given fraction into an equivalent fraction having 35 as the denominator.

= [(3/5) × (7/7)] = (21/35)

= [(2/7) × (5/5)] = (10/35)

Now,

= (21/35) + (10/35)

= [(21 + 10)/35]

= (31/35)

(iv) (9/11) – (4/15)

Solution:-

For subtraction of two unlike fractions, first change them to the like fractions.

LCM of 11, 15 = 165

Now, let us change each of the given fraction into an equivalent fraction having 165 as the denominator.

= [(9/11) × (15/15)] = (135/165)

= [(4/15) × (11/11)] = (44/165)

Now,

= (135/165) – (44/165)

= [(135 – 44)/165]

= (91/165)

(v) (7/10) + (2/5) + (3/2)

Solution:-

For addition of two unlike fractions, first change them to the like fractions.

LCM of 10, 5, 2 = 10

Now, let us change each of the given fraction into an equivalent fraction having 35 as the denominator.

= [(7/10) × (1/1)] = (7/10)

= [(2/5) × (2/2)] = (4/10)

= [(3/2) × (5/5)] = (15/10)

Now,

= (7/10) + (4/10) + (15/10)

= [(7 + 4 + 15)/10]

= (26/10)

= (13/5)

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

(vi)

Solution:-

First convert mixed fraction into improper fraction,

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

= 3 ½ = 7/2

For addition of two unlike fractions, first change them to the like fractions.

LCM of 3, 2 = 6

Now, let us change each of the given fraction into an equivalent fraction having 6 as the denominator.

= [(8/3) × (2/2)] = (16/6)

= [(7/2) × (3/3)] = (21/6)

Now,

= (16/6) + (21/6)

= [(16 + 21)/6]

= (37/6)

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

(vii) 8\frac{1}{2}-3\frac{5}{8}821−385

Solution:-

First convert mixed fraction into improper fraction,

= 8 ½ = 17/2

$=3\frac{5}{8}$= 29/8

For Subtraction of two unlike fractions, first change them to the like fractions.

LCM of 2, 8 = 8

Now, let us change each of the given fraction into an equivalent fraction having 35 as the denominator.

= [(17/2) × (4/4)] = (68/8)

= [(29/8) × (1/1)] = (29/8)

Now,

= (68/8) – (29/8)

= [(68 – 29)/8]

= (39/8)

$=3\frac{5}{8}$

2. Arrange the following in descending order:

(i) 2/9, 2/3, 8/21

Solution:-

LCM of 9, 3, 21 = 63

Now, let us change each of the given fraction into an equivalent fraction having 63 as the denominator.

[(2/9) × (7/7)] = (14/63)
[(2/3) × (21/21)] = (42/63)
[(8/21) × (3/3)] = (24/63) Clearly,

(42/63) > (24/63) > (14/63)

Hence,

(2/3) > (8/21) > (2/9)

Hence, the given fractions in descending order are (2/3), (8/21), (2/9)

(ii) 1/5, 3/7, 7/10

Solution:-

LCM of 5, 7, 10 = 70

Now, let us change each of the given fraction into an equivalent fraction having 70 as the denominator.

[(1/5) × (14/14)] = (14/70)
[(3/7) × (10/10)] = (30/70)
[(7/10) × (7/7)] = (49/70) Clearly,

(49/70) > (30/70) > (14/70)

Hence,

(7/10) > (3/7) > (1/5)

Hence, the given fractions in descending order are (7/10), (3/7), (1/5)

3. In a "magic square", the sum of the numbers in each row, in each column and along the diagonals is the same. Is this a magic square?

4/11	9/11	2/11
3/11	5/11	7/11
8/11	1/11	6/11

Solution:-

Sum along the first row = (4/11) + (9/11) + (2/11) = (15/11)

Sum along the second row = (3/11) + (5/11) + (7/11) = (15/11)

Sum along the third row = (8/11) + (1/11) + (6/11) = (15/11)

Sum along the first column = (4/11) + (3/11) + (8/11) = (15/11)

Sum along the second column = (9/11) + (5/11) + (1/11) = (15/11)

Sum along the third column = (2/11) + (7/11) + (6/11) = (15/11)

Sum along the first diagonal = (4/11) + (5/11) + (6/11) = (15/11)

Sum along the second diagonal = (2/11) + (5/11) + (8/11) = (15/11)

Yes. The sum of the numbers in each row, in each column and along the diagonals is the same, so it is a magic square.

4. A rectangular sheet of paper is 12 ½ cm long and $10\frac{2}{3}$ cm wide. Find its perimeter.

Solution:-

From the question, it is given that,

Length = 12 ½ cm = 25/2 cm

Breadth = $10\frac{2}{3}$cm
= 32/3 cm

We know that,

Perimeter of the rectangle = 2 × (length + breadth)

= 2 × [(25/2) + (32/3)]

= 2 × {[(25 × 3) + (32 × 2)]/6}

= 2 × [(75 + 64)/6]

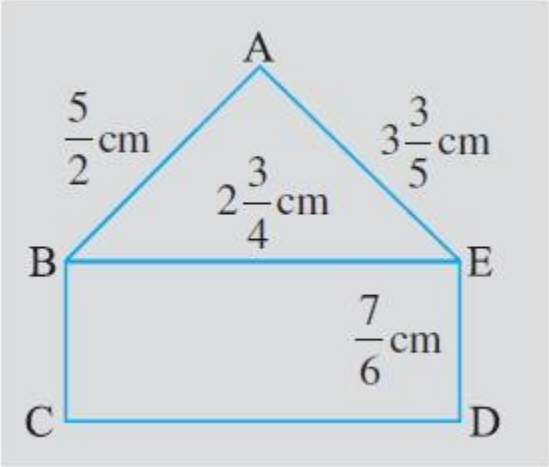
= 2 × [139/6]

= 139/3 cm

Hence, the perimeter of the sheet of paper is

$46\frac{1}{3}$

5. Find the perimeters of (i) Triangle ABE (ii) the rectangle BCDE in this figure. Whose perimeter is greater?



Solution:- From

the fig,

AB = (5/2) cm

AE =3 3/5= 18/5 cm

BE =2 3/4= 11/4 cm

ED = 7/6 cm

(i) We know that,

Perimeter of the triangle = Sum of all sides

Then,

Perimeter of triangle ABE = AB + BE + EA

= (5/2) + (11/4) + (18/5)

The LCM of 2, 4, 5 = 20

Now, let us change each of the given fraction into an equivalent fraction having 20 as the denominator.

= {[(5/2) × (10/10)] + [(11/4) × (5/5)] + [(18/5) × (4/4)]}

= (50/20) + (55/20) + (72/20)

= (50 + 55 + 72)/20

= 177/20

=8 17/20cm

(ii) Now, we have to find the perimeter of the rectangle,

We know that,

Perimeter of the rectangle = 2 × (length + breadth)

Then,

Perimeter of rectangle BCDE = 2 × (BE + ED)

= 2 × [(11/4) + (7/6)]

The LCM of 4, 6 = 12

Now, let us change each of the given fraction into an equivalent fraction having 20 as the denominator

= 2 × {[(11/4) × (3/3)] + [(7/6) × (2/2)]}

= 2 × [(33/12) + (14/12)]

= 2 × [(33 + 14)/12]

= 2 × (47/12)

= 47/6

= **7** 5/6

Finally, we have find which one is having greater perimeter.

Perimeter of triangle ABE = (177/20)

Perimeter of rectangle BCDE = (47/6)

The two perimeters are in the form of unlike fraction.

Changing perimeters into like fractions we have,

(177/20) = (177/20) × (3/3) = 531/60

(43/6) = (43/6) × (10/10) = 430/60

Clearly, (531/60) > (430/60)

Hence, (177/20) > (43/6)

∴ Perimeter of Triangle ABE > Perimeter of Rectangle (BCDE)

Question 6.
Salil wants to put a picture in a frame. The picture is 735 cm wide. To fit in the frame, the picture cannot be more than 7310 cm wide. How much should the picture be trimmed? Solution:

The width of the picture

$$= 7\frac{3}{5}\text{ cm} = \frac{38}{5}\text{ cm}$$

The required width of the frame

$$= 7\frac{3}{10}\text{ cm} = \frac{73}{10}\text{ cm}$$

∴ The width of the picture to be trimmed of

$$= \frac{38}{5}\text{ cm} - \frac{73}{10}\text{ cm} = \left(\frac{38}{5} - \frac{73}{10}\right)\text{cm}$$

$$= \left(\frac{2 \times 38 - 73 \times 1}{10}\right)\text{ cm}$$

[LCM of 5 and 10 = 10]

$$= \left(\frac{76 - 73}{10}\right)\text{ cm} = \frac{3}{10}\text{ cm}$$

Hence, the required width to be trimmed =3/10 cm.
Question 7.
Ritu ate =3/5 part of an apple and the remaining apple was eaten by her brother Somu. How much part of the apple did Somu eat? Who had the larger share? By how much?
Solution:
Let the whole part of the apple be 1.

Part of the apple eaten by Ritu = $\frac{3}{5}$

$\therefore$ Part of the apple eaten by her brother Somu

$$= 1 - \frac{3}{5} = \frac{1}{1} - \frac{3}{5} = \frac{1 \times 5 - 3 \times 1}{5}$$

$$= \frac{5-3}{5} = \frac{2}{5}$$

Since $\frac{3}{5} > \frac{2}{5}$

Thus, the share of Ritu was larger.

Difference between the two parts

$$= \frac{3}{5} - \frac{2}{5} = \frac{1}{5} \text{ part.}$$

Question 8.

Michael finished colouring a picture in 712 hour. Vaibhav finished colouring the same picture in 34 hour. Who worked longer? By what fraction was it longer?

Solution:

Time taken by Michael = 712 hour

Time taken by Vaibhav = 34 hour

Comparing $\frac{7}{12}$ and $\frac{3}{4}$, we have

$$\frac{7 \times 1}{12} \text{ and } \frac{3 \times 3}{12} \Rightarrow \frac{7}{12} \text{ and } \frac{9}{12}$$

[LCM of 12 and 4 = 12]

Since $\frac{9}{12} > \frac{7}{12} \Rightarrow \frac{3}{4}$ hour $> \frac{7}{12}$ hour

Hence, time taken by Vaibhav was longer.

$$\text{Difference} = \frac{3}{4} - \frac{7}{12} = \frac{3 \times 3}{4 \times 3} - \frac{7 \times 1}{12}$$

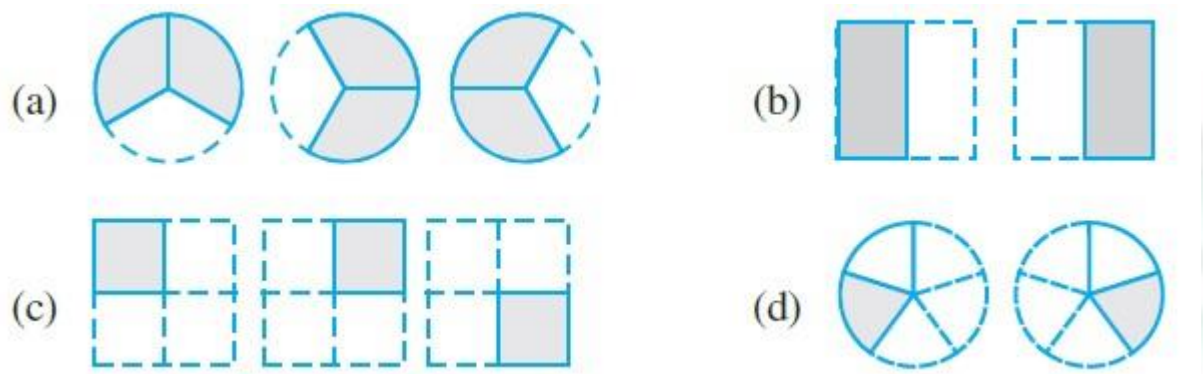
$$= \frac{9}{12} - \frac{7}{12} = \frac{2}{12} = \frac{1}{6} \text{ hour longer.}$$

Exercise 2.2

PAGE NO: 36

1. Which of the drawings (a) to (d) show:

(i) 2 × (1/5) (ii) 2 × ½ (iii) 3 × (2/3) (iv) 3 × ¼



Solution:-

(i) 2 × (1/5) represents the addition of 2 figures, each represents 1 shaded part out of the given 5 equal parts.

∴ 2 × (1/5) is represented by fig (d).

(ii) 2 × ½ represents the addition of 2 figures, each represents 1 shaded part out of the given 2 equal parts.

∴ 2 × ½ is represented by fig (b).

(iii) 3 × (2/3) represents the addition of 3 figures, each represents 2 shaded part out of the given 3 equal parts.

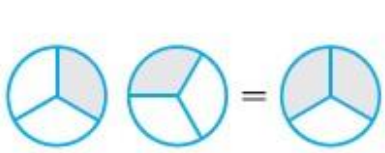
∴ 3 × (2/3) is represented by fig (a).

(iii) 3 × ¼ represents the addition of 3 figures, each represents 1 shaded part out of the given 4 equal parts.

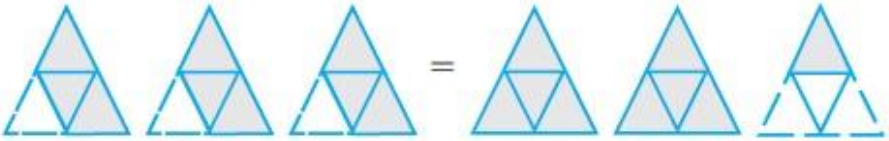
∴ 3 × ¼ is represented by fig (c).

2. Some pictures (a) to (c) are given below. Tell which of them show:

(i) 3 × (1/5) = (3/5) (ii) 2 × (1/3) = (2/3) (iii) 3 × (3/4) = 2 ¼



(a)



(b)

(c)

Solution:-

(i) 3 × (1/5) represents the addition of 3 figures, each represents 1 shaded part out of the given 5 equal parts and (3/5) represents 3 shaded parts out of 5 equal parts.

∴ 3 × (1/5) = (3/5) is represented by fig (c).

(ii) 2 × (1/3) represents the addition of 2 figures, each represents 1 shaded part out of the given 3 equal parts and (2/3) represents 2 shaded parts out of 3 equal parts.

∴ 2 × (1/3) = (2/3) is represented by fig (a).

(iii) 3 × (3/4) represents the addition of 3 figures, each represents 3 shaded part out of the given 4 equal parts and 2 ¼ represents 2 fully and 1 figure having 1 part as shaded out of 4 equal parts.

∴ 3 × (3/4) = 2 ¼ is represented by fig (b).

Question 3.
Multiply and reduce to lowest form and convert into a mixed fraction:

(*i*) $7 \times \frac{3}{5}$ (*ii*) $4 \times \frac{1}{3}$ (*iii*) $2 \times \frac{6}{7}$

(*iv*) $5 \times \frac{2}{9}$ (*v*) $\frac{2}{3} \times 4$ (*vi*) $\frac{5}{2} \times 6$

(*vii*) $11 \times \frac{4}{7}$ (*viii*) $20 \times \frac{4}{5}$ (*ix*) $13 \times \frac{1}{3}$

(*x*) $15 \times \frac{3}{5}$

Solution:

(*i*) $7 \times \frac{3}{5} = \frac{21}{5} = 4\frac{1}{5}$

$5\overline{)21}(4$
-20
1

(*ii*) $4 \times \frac{1}{3} = \frac{4}{3} = 1\frac{1}{3}$

$3\overline{)4}(1$
-3
1

(*iii*) $2 \times \frac{6}{7} = \frac{12}{7} = 1\frac{5}{7}$

$7\overline{)12}(1$
-7
5

(*iv*) $5 \times \frac{2}{9} = \frac{10}{9} = 1\frac{1}{9}$

$9\overline{)10}(1$
-9
1

(*v*) $\frac{2}{3} \times 4 = \frac{8}{3} = 2\frac{2}{3}$

$3\overline{)8}(2$
-6
2

(*vi*) $\frac{5}{2} \times 6 = \frac{\cancel{30}^{15}}{\cancel{2}} = 15$

(*vii*) $11 \times \frac{4}{7} = \frac{44}{7} = 6\frac{2}{7}$

$7\overline{)44}(6$
-42
2

(*viii*) $20 \times \frac{4}{5} = \frac{\cancel{80}^{16}}{\cancel{5}} = 16$

(*ix*) $13 \times \frac{1}{3} = \frac{13}{3} = 4\frac{1}{3}$

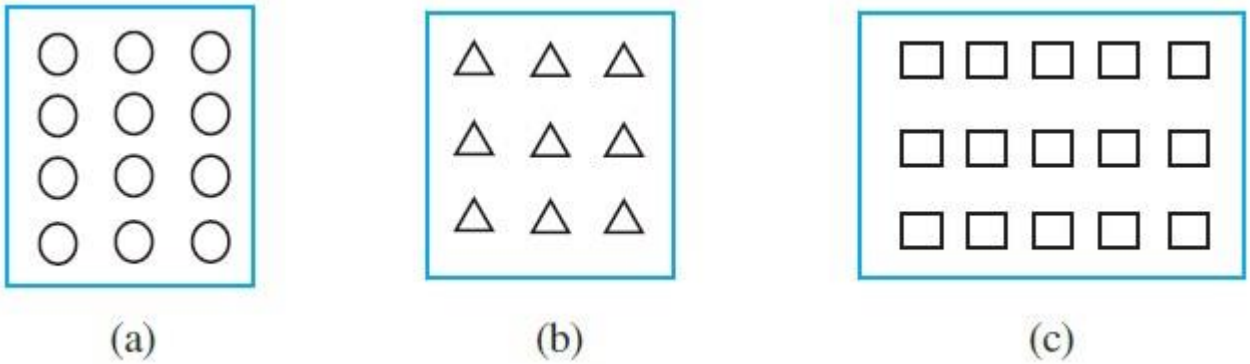
$3\overline{)13}(4$
-12
1

(*x*) $15 \times \frac{3}{5} = \frac{\cancel{45}^{9}}{\cancel{5}} = 9$

4. Shade:

(i) ½ of the circles in box (a) (b) 2/3 of the triangles in box (b)

(iii) 3/5 of the squares in the box (c)



(a) (b) (c)

Solution:-

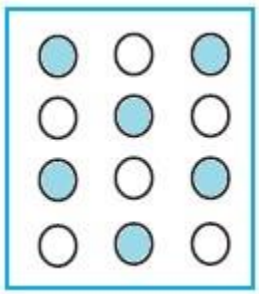
(i) From the question,

We may observe that there are 12 circles in the given box. So, we have to shade ½ of the circles in the box.

∴ 12 × ½ = 12/2

= 6

So we have to shade any 6 circles in the box.

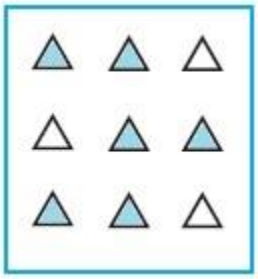


(ii) From the question,

We may observe that there are 9 triangles in the given box. So, we have to shade 2/3 of the triangles in the box. ∴ 9 × (2/3) = 18/3

= 6

So we have to shade any 6 triangles in the box.



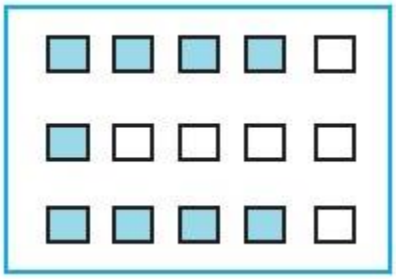
(iii) From the question,

We may observe that there are 15 squares in the given box. So, we have to shade 3/5 of the squares in the box.

∴ 15 × (3/5) = 45/5

= 9

So we have to shade any 9 squares in the box.



Question 5.Find:

(a) $\frac{1}{2}$ of (i) 24 (ii) 46 (b) $\frac{2}{3}$ of (i) 18 (ii) 27

(c) $\frac{3}{4}$ of (i) 16 (ii) 36 (d) $\frac{4}{5}$ of (i) 20 (ii) 35

Solution:

(a) (i) $\frac{1}{2}$ of $24 = \frac{1}{\cancel{2}} \times \cancel{24}^{12} = 12$

(ii) $\frac{1}{2}$ of $46 = \frac{1}{\cancel{2}} \times \cancel{46}^{23} = 23$

(b) (i) $\frac{2}{3}$ of $18 = \frac{2}{\cancel{3}} \times \cancel{18}^{6} = 12$

(ii) $\frac{2}{3}$ of $27 = \frac{2}{\cancel{3}} \times \cancel{27}^{9} = 18$

(c) (i) $\frac{3}{4}$ of $16 = \frac{3}{\cancel{4}} \times \cancel{16}^{4} = 12$

(ii) $\frac{3}{4}$ of $36 = \frac{3}{\cancel{4}} \times \cancel{36}^{9} = 27$

(d) (i) $\frac{4}{5}$ of $20 = \frac{4}{\cancel{5}} \times \cancel{20}^{4} = 16$

(ii) $\frac{4}{5}$ of $35 = \frac{4}{\cancel{5}} \times \cancel{37}^{7} = 28$

Question 6.

Multiply and express as a mixed fraction.

(a) $3 \times 5\frac{1}{5}$ (b) $5 \times 6\frac{3}{4}$ (c) $7 \times 2\frac{1}{4}$

(d) $4 \times 6\frac{1}{3}$ (e) $3\frac{1}{4} \times 6$ (f) $3\frac{2}{5} \times 8$

Solution:

(c) $7 \times 2\frac{1}{4} = 7 \times \frac{9}{4}$

$= \frac{63}{4} = 15\frac{3}{4}$

$4\overline{)\,63\,(15}$
-4
23
-20
3

(d) $4 \times 6\frac{1}{3} = 4 \times \frac{19}{3}$

$= \frac{76}{3}$

$= 25\frac{1}{3}$

$3\overline{)\,76\,(25}$
-6
16
-15
1

(e) $3\frac{1}{4} \times 6 = \frac{13}{\cancel{4}_{2}} \times \cancel{6}^{3}$

$= \frac{13 \times 3}{2}$

$= \frac{39}{2} = 19\frac{1}{2}$

$2\overline{)\,39\,(19}$
-2
19
-18
1

(f) $3\frac{2}{5} \times 8 = \frac{17}{5} \times 8$

$= \frac{136}{5}$

$= 27\frac{1}{5}$

$5\overline{)\,136\,(27}$
-10
36
-35
1

Question 7. Find:

(a) $\frac{1}{2}$ of (i) $2\frac{3}{4}$ (ii) $4\frac{2}{9}$

(b) $\frac{5}{8}$ of (i) $3\frac{5}{6}$ (ii) $9\frac{2}{3}$

Solution:

(a) (i) $\frac{1}{2}$ of $2\frac{3}{4} = \frac{1}{2} \times \frac{11}{4} = \frac{11}{8} = 1\frac{3}{8}$

(ii) $\frac{1}{2}$ of $4\frac{2}{9} = \frac{1}{\cancel{2}} \times \frac{\cancel{38}^{19}}{9} = \frac{19}{9} = 2\frac{1}{9}$

Question 8.
Vidya and Pratap went for a picnic. Their mother gave them a water bottle that contained 5 litres of water. Vidya consumed 25 of the water. Pratap consumed the remaining water.
(i) How much water did Vidya drink?
(ii) What fraction of the total quantity of water did Pratap drink?
Solution:
(i) Water consumed by Vidya = 2/5 of 5 litres

$$= \frac{2}{\cancel{5}} \times \cancel{5} \text{ litres} = 2 \text{ litres}$$

Water consumed by Patap
= 5 litres – 2 litres = 3 litres
(ii) Fraction of water consumed by Pratap = 3/5 litres

Exercise 2.3

PAGE NO: 41

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) ×

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

(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)

=

(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)

=

(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)

=

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)

=

(ii) × (7/9)

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

(iii) (3/2) ×

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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) ×

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

(v) × (4/7)

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

(vi) × 3

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

(vi) × (3/5)

Solution:-

First convert the given mixed fraction into improper fraction.

= = 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)

=

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

Exercise 2.4

PAGE NO: 46

1. Find:

(i) 12 ÷ ¾

Solution:-

We have,

= 12 × reciprocal of ¾

= 12 × (4/3)

= 4 × 4

= 16

(ii) 14 ÷ (5/6)

Solution:-

We have,

= 14 × reciprocal of (5/6)

= 14 × (6/5)

= 84/5

(iii) 8 ÷ (7/3)

Solution:-

We have,

= 8 × reciprocal of (7/3)

= 8 × (3/7)

= (24/7)

(iv) 4 ÷ (8/3)

Solution:-

We have,

= 4 × reciprocal of (8/3)

= 4 × (3/8)

= 1 × (3/2)

= 3/2

(v) 3 ÷

Solution:-

While dividing a whole number by a mixed fraction, first convert the mixed fraction into improper fraction We have,

= = 7/3

Then,

= 3 ÷ (7/3)

= 3 × reciprocal of (7/3)

= 3 × (3/7)

= 9/7

(vi) 5 ÷

Solution:-

While dividing a whole number by a mixed fraction, first convert the mixed fraction into improper fraction

We have,

= = 25/7

Then,

= 5 ÷ (25/7)

= 5 × reciprocal of (25/7)

= 5 × (7/25)

= 1 × (7/5)

= 7/5

2. Find the reciprocal of each of the following fractions. Classify the reciprocals as proper fractions, improper fractions and whole numbers.

(i) 3/7

Solution:-

Reciprocal of (3/7) is (7/3) [∵ ((3/7) × (7/3)) = 1] So,

it is an improper fraction.

Improper fraction is that fraction in which numerator is greater than its denominator. **(ii) 5/8**

Solution:-

Reciprocal of (5/8) is (8/5) [∵ ((5/8) × (8/5)) = 1] So,

it is an improper fraction.

Improper fraction is that fraction in which numerator is greater than its denominator. **(iii) 9/7**

Solution:-

Reciprocal of (9/7) is (7/9) [∵ ((9/7) × (7/9)) = 1] So,

it is a proper fraction.

A proper fraction is that fraction in which denominator is greater than the numerator of the fraction. **(iv) 6/5**

Solution:-

Reciprocal of (6/5) is (5/6) [∵ ((6/5) × (5/6)) = 1]

So, it is a proper fraction.

A proper fraction is that fraction in which denominator is greater than the numerator of the fraction. **(v) 12/7**

Solution:-

Reciprocal of (12/7) is (7/12) [∵ ((12/7) × (7/12)) = 1] So,

it is a proper fraction.

A proper fraction is that fraction in which denominator is greater than the numerator of the fraction. **(vi) 1/8**

Solution:-

Reciprocal of (1/8) is (8/1) or 8 [∵ ((1/8) × (8/1)) = 1] So,

it is a whole number.

Whole numbers are collection of all positive integers including 0.

(vii) 1/11

Solution:-

Reciprocal of (1/11) is (11/1) or 11 [∵ ((1/11) × (11/1)) = 1] So,

it is a whole number.

Whole numbers are collection of all positive integers including 0.

3. Find:

(i) (7/3) ÷ 2

Solution:-

We have,

= (7/3) × reciprocal of 2

= (7/3) × (1/2)

= (7 × 1) / (3 × 2)

= 7/6

=

(ii) (4/9) ÷ 5

Solution:-

We have,

= (4/9) × reciprocal of 5

= (4/9) × (1/5)

= (4 × 1) / (9 × 5)

= 4/45

(iii) (6/13) ÷ 7

Solution:-

We have,

= (6/13) × reciprocal of 7

= (6/13) × (1/7)

= (6 × 1) / (13 × 7) =

6/91

(iv) ÷ 3

Solution:-

First covert the mixed fraction into improper fraction. We have,

= = 13/3

Then,

= (13/3) × reciprocal of 3

= (13/3) × (1/3)

= (13 × 1) / (3 × 3)

= 13/9

(iv) 3 ½ ÷ 4

Solution:-

First covert the mixed fraction into improper fraction.

We have,

= 3 ½ = 7/2

Then,

= (7/2) × reciprocal of 4

= (7/2) × (1/4)

= (7 × 1) / (2 × 4)

= 7/8

(iv) ÷ 7

Solution:-

First covert the mixed fraction into improper fraction.

We have,

= = 31/7

Then,

= (31/7) × reciprocal of 7

= (31/7) × (1/7)

= (31 × 1) / (7 × 7)

= 31/49

4. Find:

(i) (2/5) ÷ (½)

Solution:-

We have,

= (2/5) × reciprocal of ½

= (2/5) × (2/1)

= (2 × 2) / (5 × 1)

= 4/5

We have,

(ii) (4/9) ÷ (2/3)

Solution:-

= (4/9) × reciprocal of (2/3)

= (4/9) × (3/2)

= (4 × 3) / (9 × 2)

= (2 × 1) / (3 × 1)

= 2/3

(iii) (3/7) ÷ (8/7)

Solution:-

We have,

= (3/7) × reciprocal of (8/7)

= (3/7) × (7/8)

= (3 × 7) / (7 × 8)

= (3 × 1) / (1 × 8)

= 3/8

(iv) ÷ (3/5)

Solution:-

First covert the mixed fraction into improper fraction.

We have,

= = 7/3

Then,

= (7/3) × reciprocal of (3/5)

= (7/3) × (5/3)

= (7 × 5) / (3 × 3)

We have,

= 35/9

(v) 3 ½ ÷ (8/3)

Solution:-

First covert the mixed fraction into improper fraction.
= 3 ½ = 7/2

Then,

= (7/2) × reciprocal of (8/3)

= (7/2) × (3/8)

= (7 × 3) / (2 × 8)

= 21/16

(vi) (2/5) ÷ 1 ½

Solution:-

First covert the mixed fraction into improper fraction.

We have,

= 1 ½ = 3/2

Then,

= (2/5) × reciprocal of (3/2)

= (2/5) × (2/3)

= (2 × 2) / (5 × 3) =

4/15

(vii) ÷

Solution:-

First covert the mixed fraction into improper fraction.

We have,

= = 16/5

We have,

= = 5/3

Then,

= (16/5) × reciprocal of (5/3)

= (16/5) × (3/5)

= (16 × 3) / (5 × 5) =

48/25

(viii) ÷

Solution:-

First covert the mixed fraction into improper fraction. We have,

= = 11/5

= = 6/5

Then,

= (11/5) × reciprocal of (6/5)

= (11/5) × (5/6)

= (11 × 5) / (5 × 6)

= (11 × 1) / (1 × 6)

= 11/6

Exercise 2.5

PAGE NO: 47

1. Which is grater?

(i) 0.5 or 0.05

Solution:-

By comparing whole number, 0 = 0

By comparing the tenths place digit, 5 > 0

∴ 0.5 > 0.05

(ii) 0.7 or 0.5

Solution:-

By comparing whole number, 0 = 0

By comparing the tenths place digit, 7 > 5

∴ 0.7 > 0.5

(iii) 7 or 0.7

Solution:-

By comparing whole number, 7 > 0

∴ 7 > 0.7

(iv) 1.37 or 1.49

Solution:-

By comparing whole number, 1 = 1

By comparing the tenths place digit, 3 < 4

∴ 1.37 < 1.49

(v) 2.03 or 2.30

Solution:-

By comparing whole number, 2 = 2

By comparing the tenths place digit, 0 < 3

∴ 2.03 < 2.30

(vi) 0.8 or 0.88

Solution:-

By comparing whole number, 0 = 0

By comparing the tenths place digit, 8 = 8

By comparing the hundredths place digit, 0 < 8

∴ 0.8 < 0.88

2. Express as rupees as decimals:

(i) 7 paise

Solution:- We

know that,

= ₹ 1 = 100 paise

= 1 paise = ₹ (1/100)

∴ 7 paise = ₹ (7/100)

= ₹ 0.07

(ii) 7 rupees 7 paise

Solution:- We

know that,

= ₹ 1 = 100 paise

= 1 paise = ₹ (1/100)

∴ 7 rupees 7 paise = ₹ 7 + ₹ (7/100)

= ₹ 7 + ₹ 0.07

= ₹ 7.07

(iii) 77 rupees 77 paise

Solution:- We

know that,

= ₹ 1 = 100 paise

= 1 paise = ₹ (1/100)

∴ 77 rupees 77 paise = ₹ 77 + ₹ (77/100)

= ₹ 77 + ₹ 0.77

= ₹ 77.77

(iv) 50 paise

Solution:- We

know that,

= ₹ 1 = 100 paise

= 1 paise = ₹ (1/100)

∴ 50 paise = ₹ (50/100)

= ₹ 0.50

(v) 235 paise

Solution:- We

know that, = ₹

1 = 100 paise

= 1 paise = ₹ (1/100)

∴ 235 paise = ₹ (235/100)

= ₹ 2.35

3. **(i) Express 5 cm in meter and kilometer**

Solution:- We

know that,

= 1 meter = 100 cm Then,

= 1 cm = (1/100) m

= 5 cm = (5/100)

= 0.05 m

Now,

= 1 km = 1000 m

Then,

= 1 m = (1/1000) km

= 0.05 m = (0.05/1000)

= 0. 00005 km

(i) Express 35 mm in cm, m and km

Solution:- We

know that,

= 1 cm = 10 mm

Then,

= 1 mm = (1/10) cm

= 35 mm = (35/10) cm

= 3.5 cm

And,

= 1 meter = 100 cm

Then,

= 1 cm = (1/100) m

= 3.5 cm = (3.5/100) m

= (35/1000) m

= 0.035 m

Now,

= 1 km = 1000 m

Then,

= 1 m = (1/1000) km

= 0.035 m = (0.035/1000)

= 0. 000035 km

4. Express in kg:

(i) 200 g

Solution:- We know that,

= 1 kg = 1000 g

Then,

= 1 g = (1/1000) kg

= 200 g = (200/1000) kg

= (2/10) =

0.2 kg

(ii) 3470 g

Solution:- We

know that,

= 1 kg = 1000 g

Then,

= 1 g = (1/1000) kg

= 3470 g = (3470/1000) kg = (3470/100)

= 3.470 kg

(ii) 4 kg 8 g

Solution:- We

know that,

= 1 kg = 1000 g

Then,

= 1 g = (1/1000) kg

= 4 kg 8 g = 4 kg + (8/1000) kg

= 4 kg + 0.008

= 4.008 kg

5. Write the following decimal numbers in the expanded form:

(i) 20.03

Solution:-

We have,

20.03 = (2 × 10) + (0 × 1) + (0 × (1/10)) + (3 × (1/100))

(ii) 2.03

Solution:-

We have,

$2.03 = (2 \times 1) + (0 \times (1/10)) + (3 \times (1/100))$

(iii) 200.03

Solution:-

We have,

$200.03 = (2 \times 100) + (0 \times 10) + (0 \times 1) + (0 \times (1/10)) + (3 \times (1/100))$

(iv) 2.034

Solution:-

We have,

$2.034 = (2 \times 1) + (0 \times (1/10)) + (3 \times (1/100)) + (4 \times (1/1000))$

6. Write the place value of 2 in the following decimal numbers:

(i) 2.56

Solution:-

From the question, we observe that,

The place value of 2 in 2.56 is ones

(ii) 21.37

Solution:-

From the question, we observe that,

The place value of 2 in 21.37 is tens

(iii) 10.25

Solution:-

From the question, we observe that,

The place value of 2 in 10.25 is tenths.

(iv) 9.42

Solution:-

From the question, we observe that,

The place value of 2 in 9.42 is hundredth.

(v) 63.352

Solution:-

From the question, we observe that,

The place value of 2 in 63.352 is thousandth.

7. Dinesh went from place A to place B and from there to place C. A is 7.5 km from B and B is 12.7 km from C. Ayub went from place A to place D and from there to place C. D is 9.3 km from A and C is 11.8 km from D. Who travelled more and by how much?

Solution:-

From the question, it is given that,

Distance travelled by Dinesh = AB + BC

= 7.5 + 12.7

= 20.2 km

∴Dinesh travelled 20.2 km

Distance travelled by Ayub = AD + DC

= 9.3 + 11.8

= 21.1 km

∴Ayub travelled 21.1km

Clearly, Ayub travelled more distance by = (21.1 – 20.2)

= 0.9 km

∴Ayub travelled 0.9 km more than Dinesh.

8. Shyama bought 5 kg 300 g apples and 3 kg 250 g mangoes. Sarala bought 4 kg 800 g oranges and 4 kg 150 g bananas. Who bought more fruits?

Solution:-

From the question, it is given that,

Fruits bought by Shyama = 5 kg 300 g

= 5 kg + (300/1000) kg

= 5 kg + 0.3 kg

= 5.3 kg

Fruits bought by Sarala = 4 kg 800 g + 4 kg 150 g

= (4 + (800/1000)) + (4 + (150/1000))

= (4 + 0.8) kg + (4 + .150) kg

= 4.8 kg + 4.150kg

= 8.950 kg

So, Sarala bought more fruits.

9. How much less is 28 km than 42.6 km?

Solution:-

Now, we have to find the difference of 42.6 km and 28 km

42.6

-28.0

14.6

∴ 14.6 km less is 28 km than 42.6 km.

Exercise 2.6

PAGE NO: 52

Find:

(i) 0.2 × 6

Solution:-

We have,

= (2/10) × 6

= (12/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 1.2

(ii) 8 × 4.6

Solution:-

We have,

= (8) × (46/10)

= (368/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 36.8

(iii) 2.71 × 5

Solution:-

We have,

= (271/100) × 5

= (1355/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 13.55

(iv) 20.1 × 4

Solution:-

We have,

= (201/10) × 4

= (804/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 80.4

(v) 0.05 × 7

Solution:-

We have,

= (5/100) × 7

= (35/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 0.35

(vi) 211.02 × 4

Solution:-

We have,

= (21102/100) × 4

= (84408/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 844.08

(vii) 2 × 0.86

Solution:-

We have,

= (2) × (86/100)

= (172/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 1.72

2. Find the area of rectangle whose length is 5.7cm and breadth is 3 cm.

Solution:-

From the question, it is given that,

Length of the rectangle = 5.7 cm

Breadth of the rectangle = 3 cm

Then,

Area of the rectangle = length × Breadth

= 5.7 × 3

= 17.1 cm^2

3. Find:

(i) 1.3 × 10 Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 1.3 × 10 = 13

(ii) 36.8 × 10 Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 36.8 × 10 = 368

(iii) 153.7 × 10

Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 153.7 × 10 = 1537

(iv) 168.07 × 10

Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 168.07 × 10 = 1680.7

(v) 31.1 × 100

Solution:-

On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

We have,

= 31.1 × 100 = 3110

(vi) 156.1 × 100

Solution:-

On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

We have,

= 156.1 × 100 = 15610

(vii)3.62 × 100

Solution:-

On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

We have,

= 3.62 × 100 = 362

(viii) 43.07 × 100

Solution:-

On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

We have,

= 43.07 × 100 = 4307

(ix) 0.5 × 10 Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 0.5 × 10 = 5

(x) 0.08 × 10 Solution:-

On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

We have,

= 0.08 × 10 = 0.8

(xi) 0.9 × 100 Solution:-

On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

We have,

= 0.9 × 100 = 90

(xii)0.03 × 1000

Solution:-

On multiplying a decimal by 1000, the decimal point is shifted to the right by three places.

We have,

= 0.03 × 1000 = 30

4. A two-wheeler covers a distance of 55.3 km in one litre of petrol. How much distance will it cover in 10 litres of petrol?

Solution:-

From the question, it is given that,

Distance covered by two-wheeler in 1L of petrol = 55.3 km

Then,

Distance covered by two wheeler in 10L of petrol = (10 × 55.3)

= 553 km

∴Two-wheeler covers a distance in 10L of petrol is 553 km.

5. Find:

(i) 2.5 × 0.3

Solution:-

We have,

= (25/10) × (3/10)

= (75/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

- Then,

= 0.75

(ii) 0.1 × 51.7

Solution:-

We have,

= (1/10) × (517/10)

= (517/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 5.17

(iii) 0.2 × 316.8

Solution:-

We have,

= (2/10) × (3168/10)

= (6336/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 63.36

(iv) 1.3 × 3.1

Solution:-

We have,

= (13/10) × (31/10)

= (403/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 4.03

(v) 0.5 × 0.05

Solution:-

We have,

= (5/10) × (5/100)

= (25/1000)

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

Then,

= 0.025

(vi) 11.2 × 0.15

Solution:-

We have,

= (112/10) × (15/100)

= (1680/1000)

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

Then,

= 1.680

(vii) 1.07 × 0.02

Solution:-

We have,

= (107/100) × (2/100)

= (214/10000)

On dividing a decimal by 10000, the decimal point is shifted to the left by four places.

Then,

= 0.0214

(viii) 10.05 × 1.05

Solution:-

We have,

= (1005/100) × (105/100)

= (105525/10000)

On dividing a decimal by 10000, the decimal point is shifted to the left by four places.

Then,

= 10.5525

(ix) 101.01 × 0.01

Solution:-

We have,

= (10101/100) × (1/100)

= (10101/10000)

On dividing a decimal by 10000, the decimal point is shifted to the left by four places.

Then,

= 1.0101

(x) 100.01 × 1.1

Solution:-

We have,

= (10001/100) × (11/10)

= (110011/1000)

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

Then,

= 110.011

Exercise 2.7

PAGE NO: 55

1. Find:

(i) 0.4 ÷ 2

Solution:-

We have,

= (4/10) ÷ 2

Then,

= (4/10) × (1/2)

= (2/10) × (1/1) =

(2/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 0.2

(ii) 0.35 ÷ 5

Solution:-

We have,

= (35/100) ÷ 5

Then,

= (35/100) × (1/5)

= (7/100) × (1/1)

= (7/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 0.07

(iii) 2.48 ÷ 4

Solution:-

We have,

= (248/100) ÷ 4

Then,

= (248/100) × (1/4)

= (62/100) × (1/1)

= (62/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 0.62

(iv) 65.4 ÷ 6

Solution:-

We have,

= (654/10) ÷ 6

Then,

= (654/10) × (1/6)

= (109/10) × (1/1)

= (109/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 10.9

(v) 651.2 ÷ 4

Solution:-

We have,

= (6512/10) ÷ 4

Then,

= (6512/10) × (1/4)

= (1628/10) × (1/1)

= (1628/10)

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

Then,

= 162.8

(vi) 14.49 ÷ 7

Solution:-

We have,

= (1449/100) ÷ 7

Then,

= (1449/100) × (1/7)

= (207/100) × (1/1)

= (207/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 2.07

(vii) 3.96 ÷ 4

Solution:-

We have,

= (396/100) ÷ 4

Then,

= (396/100) × (1/4)

= (99/100) × (1/1)

= (99/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then,

= 0.99

(viii) 0.80 ÷ 5

Solution:-

We have,

= (80/100) ÷ 5

Then,

= (80/100) × (1/5)

= (16/100) × (1/1)

= (16/100)

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

Then, =

0.16

2. Find:

(i) 4.8 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 4.8 ÷ 10

= (4.8/10)

= 0.48

(ii) 52.5 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 52.5 ÷ 10

= (52.5/10)

= 5.25

(iii) 0.7 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 0.7 ÷ 10

= (0.7/10)

= 0.07

(iv) 33.1 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 33.1 ÷ 10

= (33.1/10)

= 3.31

(v) 272.23 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 272.23 ÷ 10

= (272.23/10)

= 27.223

(vi) 0.56 ÷ 10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 0.56 ÷ 10

= (0.56/10)

= 0.056

(vii) 3.97 ÷10

Solution:-

On dividing a decimal by 10, the decimal point is shifted to the left by one place.

We have,

= 3.97 ÷ 10

= (3.97/10)

= 0.397

3. Find:

(i) 2.7 ÷ 100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 2.7 ÷ 100

= (2.7/100)

= 0.027

(ii) 0.3 ÷ 100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 0.3 ÷ 100

= (0.3/100)

= 0.003

(iii) 0.78 ÷ 100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 0.78 ÷ 100

= (0.78/100)

= 0.0078

(iv) 432.6 ÷ 100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 432.6 ÷ 100

= (432.6/100)

= 4.326

(v) 23.6 ÷100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 23.6 ÷ 100

= (23.6/100)

= 0.236

(vi) 98.53 ÷ 100

Solution:-

On dividing a decimal by 100, the decimal point is shifted to the left by two places.

We have,

= 98.53 ÷ 100

= (98.53/100)

= 0.9853

4. Find:

(i) 7.9 ÷ 1000

Solution:-

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

We have,

= 7.9 ÷ 1000

= (7.9/1000)

= 0.0079

(ii) 26.3 ÷ 1000

Solution:-

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

We have,

= 26.3 ÷ 1000

= (26.3/1000)

= 0.0263

(iii) 38.53 ÷ 1000

Solution:-

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

We have,

= 38.53 ÷ 1000

= (38.53/1000)

= 0.03853

(iv) 128.9 ÷ 1000

Solution:-

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

We have,

= 128.9 ÷ 1000

= (128.9/1000)

= 0.1289

(v) 0.5 ÷ 1000

Solution:-

On dividing a decimal by 1000, the decimal point is shifted to the left by three places.

We have,

= 0.5 ÷ 1000

= (0.5/1000)

= 0.0005

5. Find:

(i) 7 ÷ 3.5

Solution:-

We have,

= 7 ÷ (35/10) =

7 × (10/35)

= 1 × (10/5) =

2

(ii) 36 ÷ 0.2

Solution:-

We have,

= 36 ÷ (2/10) =

36 × (10/2)

= 18 × 10

= 180

(iii) 3.25 ÷ 0.5

Solution:-

We have,

= (325/100) ÷ (5/10) =

(325/100) × (10/5)

= (325 × 10)/ (100 × 5)

= (65 × 1)/ (10 × 1)

= 65/10

= 6.5

(iv) 30.94 ÷ 0.7

Solution:-

We have,

= (3094/100) ÷ (7/10)

= (3094/100) × (10/7)

= (3094 × 10)/ (100 × 7)

= (442 × 1)/ (10 × 1)

= 442/10

= 44.2

(v) 0.5 ÷ 0.25

Solution:-

We have,

= (5/10) ÷ (25/100) =

(5/10) × (100/25)

= (5 × 100)/ (10 × 25)

= (1 × 10)/ (1 × 5)

= 10/5

= 2

(vi) 7.75 ÷ 0.25

Solution:-

We have,

= (775/100) ÷ (25/100) =

(775/100) × (100/25)

= (775 × 100)/ (100 × 25)

= (155 × 1)/ (1 × 5)

= (31 × 1)/ (1 × 1)

= 31

(vii) 76.5 ÷ 0.15

Solution:-

We have,

= (765/10) ÷ (15/100)

= (765/10) × (100/15)

= (765 × 100)/ (10 × 15)

= (51 × 10)/ (1 × 1)

= 510

(viii) 37.8 ÷ 1.4

Solution:-

We have,

= (378/10) ÷ (14/10)

= (378/10) × (10/14)

= (378 × 10)/ (10 × 14)

= (27 × 1)/ (1 × 1)

= 27

(ix) 2.73 ÷ 1.3

Solution:-

We have,

= (273/100) ÷ (13/10)

= (273/100) × (10/13)

= (273 × 10)/ (100 × 13)

= (21 × 1)/ (10 × 1)

= 21/10

= 2.1

6. A vehicle covers a distance of 43.2 km in 2.4 litres of petrol. How much distance will it cover in one litre of petrol?

Solution:-

From the question, it is given that,

Total distance covered by vehicle in 2.4 litres of petrol = 43.2 km

Then,

Distance covered in 1 litre of petrol = 43.2 ÷ 2.4

= (432/10) ÷ (24/10)

= (432/10) × (10/24)

= (432 × 10)/ (10 × 24)

= (36 × 1)/ (1 × 2)

= (18 × 1)/ (1 × 1)

= 18 km

∴Total distance covered in 1 liter of petrol is 18 km.