

EXERCISE-01

Multiple Choice Questions

- How many times does the digit 2 occur between 1 and 100?
(1) 10 (2) 9
(3) 12 (4) 20
- Which of the following natural numbers does not have a predecessor (natural number)?
(1) 2 (2) 1
(3) 3 (4) 1000
- Solve by grouping, the product $5 \times 467 \times 20 \times 10$ is :
(1) 47600 (2) 95200
(3) 467000 (4) 952000
- By suitable rearrangement find the sum:
 $837 + 300 + 363$
(1) 1400 (2) 1600
(3) 1500 (4) 450
- Which of these are two consecutive numbers after 80009?
(1) 800100, 80011
(2) 80010, 800011
(3) 80010, 80011
(4) 8010, 8011
- The population of a village is 1500. If 489 are men and 472 are women, find the number of children.
(1) 549 (2) 439
(3) 559 (4) 539
- Find the number of pages in a book which has on an average 207 words on a page and contains 2,01,411 words altogether.
(1) 1111 pages (2) 1001 pages
(3) 973 pages (4) 989 pages
- In a sum, the divisor is 173, the quotient is 2,544 and the remainder is 60. What is the dividend?
(1) 12924 (2) 440172
(3) 152813 (4) 172544
- A cinema hall is to be constructed in which each row must have 36 seats. Determine the minimum number of rows required to seat 600 persons at a time.
(1) 18 (2) 17
(3) 20 (4) 16
- Which of the following will represent zero?
(1) $4 \div 2$ (2) $\frac{0}{2}$
(3) $\frac{2}{2}$ (4) $\frac{6-0}{2}$
- Which of the following statements is not true for three whole numbers a, b and c?
(1) $a + (b + c) = (a + b) + c$
(2) $a \times (b + c) = (a \times b) + (a \times c)$
(3) $a \div (b \div c) = (a \div b) \div c$
(4) $(a \times b) \times c = a \times (b \times c)$
- Manisha makes 8 gift packs containing biscuits for Diwali. She puts 12 chocolate biscuits, 14 coconut biscuits and 8 butter cookies in each pack. With the help of which property, can you calculate the total number of biscuits in 8 packs?
(1) Commutative property
(2) Associative property
(3) Distributive property
(4) None of these

- 13.** Which whole number 'a' does not satisfy the relation $a \div a = 1$?
- (1) 1 (2) 5
(3) 0 (4) 100
- 14.** On dividing a number by 68, we get 269 as quotient and 0 as remainder. On dividing the same number by 67, what will be the remainder?
- (1) 0 (2) 1
(3) 2 (4) 3
- 15.** Which number represents both a square number and a triangular number?
- (1) 9 (2) 16
(3) 25 (4) 36
- 16.** What least number should be added to 1330 to get a number exactly divisible by 43?
- (1) 4 (2) 1
(3) 3 (4) 7
- 17.** The largest 3-digit number divisible by 19 is:
- (1) 988 (2) 998
(3) 999 (4) 969
- 18.** On dividing 55,390 by 299 the remainder is 75. The quotient is
- (1) 195 (2) 185
(3) 175 (4) 193
- 19.** What least number must be subtracted from 13,601 to get a number exactly divisible by 87?
- (1) 25 (2) 29
(3) 27 (4) 23
- 20.** The product of $231 \times 567 \times 7 \times 0$ is :
- (1) 916839 (2) 130997
(3) 0 (4) 1

True or false

- Every multiplication expression for two distinct non-zero whole numbers gives two corresponding division expressions.
- There are no distinct whole numbers a, b and c such that $a \div (b \div c) = (a \div b) \div c$.
- If a whole number p is divided by another whole number q and $q > p$, then $p \div q$ is a whole number.
- Any non-zero whole number divided by itself gives the quotient 1.
- $16 \times 10 - 16 \times 3 = (16 - 3) \times 10$.
- If $21 + x = 15$, then $x = 21 - 15$.
- If $y \div 7 = 0$, then $y = 0$.
- $a \times (b + c) = (a + b) \times (a + c)$.
- Multiplication always distributes over subtraction on whole numbers.
- $a \times b = b \times a$.

Fill in the blanks

- Every whole number on the number line is _____ than every whole number on its right.
- Every natural number is a _____ number.
- $10,000 + \underline{\hspace{2cm}} = 10,000$.
- $8019 - \underline{\hspace{2cm}} = 5784$.
- $0 \div 38 = \underline{\hspace{2cm}}$.
- $0 \times 0 = \underline{\hspace{2cm}}$.
- The additive identity for whole numbers is _____.
- The whole number which cannot be used as a divisor is _____.
- The difference of two whole numbers need not be a whole number. Thus, the _____ property does not hold good in subtraction of whole numbers.
- Whole number are not commutative under _____ and _____.

ANSWER KEY

Multiple choice questions

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	2	3	3	3	4	3	2	2	2	3	3	3	2	4
Question	16	17	18	19	20										
Answer	3	1	2	2	3										

True or false

- | | | | |
|----------|----------|----------|----------|
| 1. True | 2. True | 3. False | 4. True |
| 5. False | 6. False | 7. True | 8. False |
| 9. False | 10. True | | |

Fill in the blanks

- | | | | |
|------------|---------------------------|------|---------|
| 1. less | 2. whole | 3. 0 | 4. 2235 |
| 5. 0 | 6. 0 | 7. 0 | 8. 0 |
| 9. closure | 10. subtraction, division | | |

EXERCISE-02

Very short answer type questions

- Complete the following :
 - $9538 - \underline{\hspace{2cm}} = 3762$
 - $72035 - \underline{\hspace{2cm}} = 30019$
- Find the value of each of the following :
 - $0 \div 39$
 - $0 \div 975$
 - $5 \div 5$
 - $701 - (1869 \div 1869)$
 - $(3278 \div 3278) - (5098 \div 5098)$
- Fill in the boxes :
 - $18 \times 6 + 18 \times 7 = 18(6 + \boxed{\hspace{1cm}})$
 - $16 \times 9 + 16 \times 6 = 16(\boxed{\hspace{1cm}} + 6)$
 - $7 \times 6 - 7 \times 3 = \boxed{\hspace{1cm}}(6 - 3)$
 - $6 \times 7 - 6 \times 2 = 6(\boxed{\hspace{1cm}} - 2)$
 - $5 \times 3 + 10 \times 3 = 3(\boxed{\hspace{1cm}} + 5)$
 - $22 \times 13 + 22 \times 12 = 22 \times \boxed{\hspace{1cm}}$
- Solve using the distributive property.
 - 8×107
 - 18×95
 - 5×108
 - 24×102
 - 15×104
 - 98×15
 - 996×16
 - 1020×35
 - $30 \times 9 + 60 \times 9$
 - $23 \times 9 + 23 \times 1$
 - $15 \times 12 - 5 \times 12$
 - $96 \times 73 - 94 \times 73$
 - $697 \times 8 + 697 \times 2$

Short answer type questions

- Solve the following :
 - $69 + 18 + 32$
(using the associative property)
 - $67 \times 14 - 65 \times 14$
(using the distributive property)
- Find each of the following products by using properties of multiplication :
 - $46 \times 982 + 27 \times 982 - 58 \times 982 - 15 \times 982$
 - $957 \times 10 \times 583 - 483 \times 9570$
- Using properties of addition and multiplication, find each of the following products :
 - 928×857
 - 367×10004
- 25 sets containing a pencil and a ruler are made. The cost of each pencil is Rs 2 and that of a ruler is Rs 8. What is the total cost of 25 sets?
- A security checkpoint can check up to 250 people per hour. What is the greatest number of people that can be checked in 5 days?
- Tia makes return gift packs each having 5 chocolates and 6 pens. Write a mathematical statement to find the total number of things in 8 packs. Write property of multiplication we use here.
- Ashok buys 20 notebooks and 20 pens. The cost of each notebook is Rs. 45 and that of each pen is Rs. 15. Find the amount of money he spent.
- In a bouquet, there are 7 roses and 8 gladioli. In 9 bouquets, how many flowers are there? Write the mathematical statement for this.
- In a class there are 23 boys and 18 girls. How many students are there in six such classes? Write the mathematical statement.

14. In a plate there were 9 sweets. 3 of the sweets in each plate were rasgullas and the remaining were burfees. How many burfees are there in 7 plates? Write the mathematical statement.

Long answer type questions

15. What number am I?
I am a number between 10 and 20. If you divide 100 or 122 by me, the remainder is 1.
16. I am a number between 13 and 20. If you divide 50 or 98 by me, the remainder is 2. Find the number.
17. Given two whole numbers a and b , which of the following may not always be whole numbers.
- | | |
|--------------------|---------------|
| (i) $a + b$ | (ii) $a - b$ |
| (iii) $a \times b$ | (iv) $2a + b$ |

18. Find a whole number 'p' such that $p + p = p$.
19. A school principal places orders for 85 chairs and 25 tables with a dealer. Each chair cost Rs.180 and each table cost Rs.140. If the principal has given Rs.2500 to the dealer as an advance money, then what is the remaining amount to be given to the dealer now?
20. The budget for the annual day function of a school was Rs.60,000, out of which Rs.14,500 was paid to the tent house, Rs.10,400 to the band party and Rs.5,000 for refreshments. How much money was left over after meeting these expenses ?

ANSWER KEY**Very short answer type questions**

1. (i) 5776 (ii) 42016
2. (i) 0 (ii) 0 (iii) 1 (iv) 700 (v) 0
3. (i) 7 (ii) 9 (iii) 7 (iv) 7 (v) 10 (vi) 25
4. (i) 856 (ii) 1710 (iii) 540 (iv) 2448 (v) 1560 (vi) 1470
(vii) 15936 (viii) 35700 (ix) 810 (x) 230 (xi) 120 (xii) 146
(xiii) 6970

Short answer type questions

5. (i) 119 (ii) 28 6. (i) 0 (ii) 957000
7. (i) 795296 (ii) 3671468 8. Rs. 250
9. 30,000 people 10. $8(5 + 6) = 88$, Distributive property
11. Rs.1200 12. 135, $9(7 + 8)$
13. $6(23 + 18) = 246$ 14. $7(9 - 3) = 42$

Long answer type questions

15. 11 16. 16
17. (ii) 18. 0
19. Rs.16300 20. Rs. 30,100

Exercise-01 Solutions

Multiple choice questions

1. Option (4)

For the range 1 – 10; 2 occurs one time. The range 0 to 9 repeats ten times, once for each leading digit and each time this happens it increases the number of 2's by 1. However, when the leading digit is 2, we have to add an additional 10 to the number of 2's. In general, if you write all numbers from 1 to 10^n , 2 will be written $n(10^{n-1})$ times.

$$\begin{aligned} & 1 \text{ to } 100 \\ & = 1 \text{ to } 10^2 = 2(10^{2-1}) = 2(10^1) \\ & = 2 \times 10 \\ & = 20 \text{ times} \end{aligned}$$

2. Option (2)

Natural numbers are the counting numbers starting from 1, 2 and so on.

Predecessor of 1 is $1 - 1 = 0$

Predecessor of 2 is $2 - 1 = 1$

Predecessor of 3 is $3 - 1 = 2$

Predecessor of 1000 is $1000 - 1 = 999$

Here, predecessor of a given number is obtained by subtracting 1 from it.

∴ we conclude that 1 does not have a predecessor because "0" is not a natural number. It is included in the set of whole numbers.

3. Option (3)

The product $5 \times 467 \times 20 \times 10$ is determined by using associative property which makes the calculation easy to do.

$$\begin{aligned} & \text{i.e., } 5 \times 467 \times 20 \times 10 \\ & = (5 \times 20) \times (467 \times 10) \\ & = 100 \times 4670 \\ & = 467000 \end{aligned}$$

4. Option (3)

$$837 + 300 + 363$$

∴ we know that $7 + 3 = 10$

So, here we use associative property by grouping the numbers.

$$\begin{aligned} & \text{i.e., } (837 + 363) + 300 \\ & = 1200 + 300 = 1500 \end{aligned}$$

5. Option (3)

Numbers which follow each other in order, without gaps, from smallest to largest are called consecutive numbers. Ex. 11, 12, 13

So, two consecutive numbers after 80009 are 80010, 80011.

6. Option (4)

Population of a village = 1500

Number of Men = 489

Number of women = 472

\therefore Number of children = Total population – (Number of men + Number of women)

$$= 1500 - (489 + 472)$$

$$= 1500 - 961 = 539$$

Hence, number of children are 539.

7. Option (3)

Average words on a page = 207

Total words in a book altogether = 2,01,411

$$\therefore \text{Number of pages in a book} = \frac{2,01,411}{207} = 973$$

Hence, this book has 973 pages.

8. Option (2)

We know that:

Dividend = Divisor \times Quotient + Remainder.

Here, it is given that divisor is 173, quotient is 2,544 and the remainder is 60.

$$\therefore \text{Dividend} = 173 \times 2544 + 60$$

$$= (170 + 3) \times (2544) + 60$$

$$= 170 \times 2544 + 2544 \times 3 + 60$$

$$= 432480 + 7632 + 60$$

$$= 440112 + 60$$

$$= 440172$$

9. Option (2)

A cinema hall with each having row = 36 seats

\therefore Minimum number of rows required to seat 600 persons at a time

$$= \frac{600}{36} = 16.666\ldots$$

Since, rows with all 36 seats filled = 16

$$\therefore 36 \times 16 = 576$$

and total persons are 600

$$\therefore 600 - 576 = 24$$

But 24 people are left.

So, we require one more row of 36 seats for 24 people in which 12 seats will be vacant.

$$\therefore \text{Number of rows} = 16 + 1 = 17$$

10. Option (2)

If zero is divided by any natural number, the result will always be zero and Division of a whole number by zero is meaningless and is not allowed.

$$\therefore \frac{1}{0} = \text{meaningless (it will not represent zero)}$$

$$0 \times 0 = 0$$

$$\frac{0}{2} = 0$$

$$\frac{10-10}{2} = \frac{0}{2} = 0$$

11. Option (3)

Addition and multiplication of whole numbers are commutative and associative.

But not in the case of subtraction and division. Multiplication is distributive over subtraction.

If a, b and c are whole numbers, then

$$a \times (b - c) = a \times b - a \times c; \text{ if } b > c \text{ only}$$

$$\text{Also, } a + (b + c) = (a + b) + c$$

$$\text{And } a \times (b + c) = (a \times b) + (a \times c)$$

$$\text{Now Ex. } a \div (b \div c) \neq (a \div b) \div c$$

if $a = 6, b = 3,$ and $c = 2$ then

$$a \div (b \div c) = 6 \div (3 \div 2) = 6 \div \frac{3}{2}$$

$$= 6 \times \frac{2}{3} = 4$$

$$\text{but } (a \div b) \div c = (6 \div 3) \div 2 = \left(\frac{6}{3}\right) \div 2$$

$$= 2 \div 2 = 1$$

Hence $4 \neq 1$

12. Option (3)

Given; 8 gift packs contain

12 chocolate biscuits

14 coconut biscuits

8 butter cookies

∴ Number of biscuits in each pack can be calculated with the help of

Distributive property

$$8 \times (12 + 14 + 8) = 8 \times 12 + 8 \times 14 + 8 \times 8$$

$$= 96 + 112 + 64 = 272$$

13. Option (3)

For $a \div a = 1$

$$\frac{1}{1} = 1, \frac{0}{0} \neq 1, \text{ (indeterminate form)}$$

$$\frac{5}{5} = 1, \frac{100}{100} = 1$$

14. Option (2)

Given: Quotient = 269

Let the number be x i.e., Dividend.

$$\text{So, } \frac{x}{68} = 269 + 0 \text{ (according to the question)}$$

$$x = 269 \times 68 + 0$$

$$x = 269 \times 68 + 0$$

$$x = 18292 + 0 = 18292$$

∴ Number is 18292

Now, on dividing this number by 67, we have

$$= \frac{18292}{67} = 273 \text{ will be the quotient and 1 will be the remainder.}$$

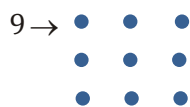
$$\text{i.e., } 18292 = 67 \times 273 + 1$$

15. Option (4)

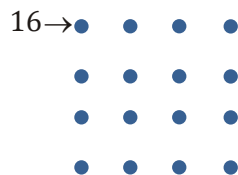
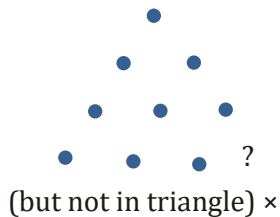
Numbers and elementary shapes can be correlated using patterns.

Some numbers can be arranged as squares, they are known as perfect squares and some numbers can be arranged as triangles. The triangle should have its two sides equal and always one dot at the top.

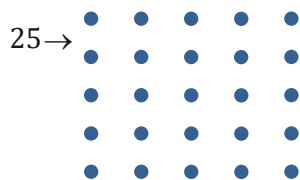
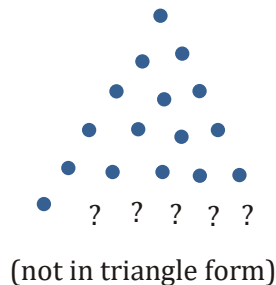
Let us represent the numbers now:



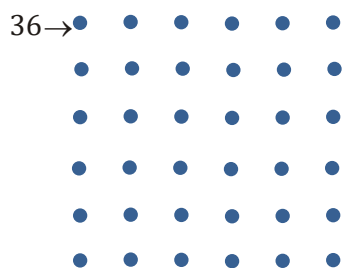
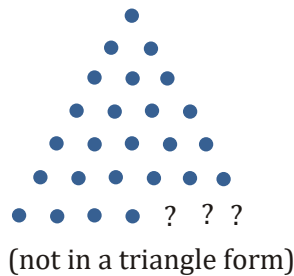
(square)



(square)



(square)



(square)



16. Option (3)

Dividend = Divisor × Quotient + Remainder

$$\begin{array}{r} 43 \overline{) 1330} 3 \\ \underline{-129} \\ 40 \end{array}$$

$$1330 = 43 \times 3 + 40$$

So, if we add 3 in the dividend then it will be exactly divisible by 43.

$$\text{i.e., } \frac{1333}{43} = 31$$

17. Option (1)

Since the largest 3-digit number is 999 but we have to find out the number in the given numbers which is exactly divisible by 19.

$$(i) \frac{988}{19} = 52$$

$$(ii) \frac{998}{19} = 52 \frac{10}{19}$$

$$(iii) \frac{999}{19} = 52 \frac{11}{19}$$

$$(iv) \frac{969}{19} = 51$$

Both the numbers 988 and 969 are exactly divisible by 19. But here we have to select the largest amongst these two i.e.;

$$988 > 969$$

∴ 988 is the largest 3-digit number divisible by 19.

18. Option (2)

Dividend = Divisor × Quotient + Remainder

here; dividend = 55,390

divisor = 299

remainder = 75

Quotient = ?

Let quotient be "x"

$$= 55390 = 299 \times x + 75$$

$$55390 - 75 = 299 \times x$$

$$\therefore x = \frac{55315}{299} = 185$$

Hence; quotient is 185.

19. Option (2)

∴ Dividend = Divisor × Quotient + Remainder

Firstly, we divide 13,601 by 87

$$\begin{array}{r} 156 \\ 87 \overline{) 13601} \\ \underline{-87} \\ 490 \\ \underline{-435} \\ 551 \\ \underline{-522} \\ 29 \end{array}$$

$$13601 = 87 \times 156 + 29$$

So, when 29 is subtracted from 13601 then

$$13601 - 29 = 87 \times 156$$

13572 will be exactly divisible by 87.

20. **Option (3)**

$$231 \times 567 \times 7 \times 0$$

Any number when multiplied by zero gives the result as zero only.

True or false

1. **True**

Division is the opposite of multiplication.

When we know a multiplication fact, we can find easily a division fact.

$$\text{Ex. } 3 \times 5 = 15, \text{ So, } \frac{15}{5} = 3$$

$$\text{Also, } \frac{15}{3} = 5$$

2. **True**

$$a \div (b \div c) \neq (a \div b) \div c$$

associative property is not true in case of division.

3. **False**

$p \div q$; $q > p$; $p \div q$ is not a whole number.

$$\text{Ex. } p = 3 \text{ and } q = 6 \text{ here } q > p \text{ then } \frac{p}{q} = \frac{3}{6} = \frac{1}{2}$$

$\therefore \frac{1}{2}$ is not a whole number.

4. **True**

$$\text{Ex. } 2 \div 2 = \frac{2}{2} = 1$$

5. **False**

$$16 \times 10 - 16 \times 3 = (16 - 3) \times 10$$

$$\Rightarrow 160 - 48 = 13 \times 10$$

$$\Rightarrow 13 \times 10 = 130$$

$$\Rightarrow 112 \neq 130$$

$$\therefore 16 \times 10 - 16 \times 3 \neq (16 - 3) \times 10$$

6. **False**

$$21 + x = 15; x = 15 - 21 = -6$$

$$\text{and } x = 21 - 15 = 6$$

$$\text{So } -6 \neq 6$$

7. **True**

$$y \div 7 = 0; \frac{y}{7} = 0$$

Cross multiply them

$$\frac{y}{7} = 0$$

$$y = 0 \times 7$$

$$y = 0$$

8. **False**

We know that $a \times (b+c) = a \times b + a \times c$

So, $(a \times b) + (a \times c) \neq (a + b) \times (a + c)$

9. **False**

Multiplication is distributive over subtraction for some whole numbers.

If a , b and c are whole numbers, then

$a \times (b - c) = a \times b - a \times c$ if $b > c$ only.

10. **True**

$$a \times b = b \times a$$

Multiplication is commutative if a and b are whole numbers.

Fill in the blanks

1. Number line is the horizontal line used to represent the numbers on this line.



—————→ increasing from left to right

2. Natural number = starting from 1, 2, 3, so on and whole number = all the natural numbers and "0" are collectively termed as whole numbers.

∴ Every natural number is a whole number.

3. $10,000 + 0 = 10,000$

Anything added with/to zero is equal to the original quantity.

4. $8019 - x = 5784$

$$\Rightarrow 8019 - x - 5784 = 0;$$

$$8019 - 5784 = x$$

$$\Rightarrow x = 2235$$

5. $0 \div 38 = 0$

$$\frac{0}{38} = 0$$

6. $0 \times 0 = 0$

7. The additive identity for whole numbers is 0.

In general, let "a" be any whole number then $a + 0 = 0 + a = a$

8. 0

9. Closure

10. Subtraction and division.

Exercise-02 Solutions

1. (i) $9538 - \underline{\quad} = 3762$

Let the number to be subtracted from 9538 be "x", then $9538 - x = 3762$

Change the place of x from the left to right.

$$9538 = 3762 + x$$

whenever we change the position their sign changes i.e., if it was positive before, then it will become negative after and vice-versa.

$$9538 - 3762 = x$$

$$5776 = x$$

$$\text{Hence; } 9538 - 5776 = 3762$$

(ii) $72035 - \underline{\quad} = 30019$

Let the number we have to find out be x. Whenever we change the position from left to right or right to left, its sign changes and it is known as Transposition.

$$72035 - x = 30019$$

$$72035 - 30019 = x$$

$$42016 = x$$

$$\text{Hence; } 72035 - 42016 = 30019$$

2. (i) If zero is divided by any natural number, the result will always be zero.

i.e., $0 \div 39$

$$\frac{0}{39} = 0$$

(ii) $0 \div 975$

$$\frac{0}{975} = 0$$

(iii) $5 \div 5 = 1$ when a non-zero whole number is divided by itself then the result is always "1".

(iv) $701 - (1869 \div 1869)$, According to the BODMAS rule, we always solve the questions as;

B → Brackets

O → Of

D → Division

M → Multiplication

A → Addition

S → Subtraction

$$= 701 - \left(\frac{1869}{1869} \right) = 701 - (1) = 701 - 1 = 700$$

(v) $(3278 \div 3278) - (5098 \div 5098)$

$$= \left(\frac{3278}{3278} \right) - \left(\frac{5098}{5098} \right) = 1 - 1 = 0$$

3. (i) $18 \times 6 + 18 \times 7 = 18 (6 + \boxed{})$

By using distributive property, we can do multiplication over addition.

i.e.; $a \times (b + c) = (a \times b) + (a \times c)$

So, using this distributive property here we have

$18 \times 6 + 18 \times 7 = 18 \times (6 + 7)$ by taking out 18 common from both the terms.

$\therefore 18 \times 6 + 18 \times 7 = 18 \times (6 + \boxed{7})$

(ii) $16 \times 9 + 16 \times 6 = 16 \times (\boxed{} + 6)$

By using distributive property, we have

$16 \times 9 + 16 \times 6 = 16 \times (\boxed{9} + 6)$

(iii) $7 \times 6 - 7 \times 3 = \boxed{} \times (6 - 3)$

Multiplication is distributive over subtraction if a, b, c are whole numbers and $b > c$

$a \times (b - c) = a \times b - a \times c$

Here $7 \times (6 - 3)$; $a = 7, b = 6, c = 3$

$\therefore b > c, 6 > 3$

So, $7 \times 6 - 7 \times 3 = \boxed{7} \times (6 - 3)$

(iv) $6 \times 7 - 6 \times 2 = 6 \times (\boxed{} - 2)$

$6 \times (7 - 2) = 6 \times (\boxed{7} - 2)$

(v) $5 \times 3 + 10 \times 3 = 3 \times (\boxed{} + 5)$

Taking out 3 common in left hand side $= 3 \times (5 + 10)$

On re-arranging we have

$10 \times 3 + 5 \times 3 = 3 \times (10 + 5) = 3 \times (\boxed{10} + 5)$

(vi) $22 \times 13 + 22 \times 12 = 22 \times \boxed{}$

Taking out 22 common in left side then we have

$22 \times (13 + 12)$

$= 22 \times (25) = 22 \times 25$

So, $22 \times 13 + 22 \times 12 = 22 \times \boxed{25}$

4. To solve using distributive property, we have

$a \times (b + c) = (a \times b) + (a \times c)$

and $a \times (b - c) = (a \times b) - (a \times c)$, if $b > c$

Also, $a \times (b \times c) = (a \times b) \times c$ [associative property]

(i) 8×107

$= 8 \times (100 + 7) = (8 \times 100) + (8 \times 7) = 800 + 56 = 856$

(ii) 18×95

$= 18 \times (100 - 5)$; here $100 > 5 \Rightarrow (18 \times 100) - (18 \times 5) = 1800 - 90 = 1710$

(iii) 5×108

$= 5 \times (100 + 8) = 5 \times 100 + 5 \times 8 = 500 + 40 = 540$

- (iv) 24×102
 $= 24 \times (100 + 2) = 24 \times 100 + 24 \times 2 = 2400 + 48 = 2448$
- (v) 15×104
 $= 15 \times (100 + 4) = (15 \times 100) + (15 \times 4) = 1500 + 60 = 1560$
- (vi) 98×15
 $= (100 - 2) \times 15 = (100 \times 15) - (2 \times 15) = 1500 - 30 = 1470$
- (vii) 996×16
 $= (1000 - 4) \times 16 = 1000 \times 16 - 16 \times 4 = 16000 - 64 = 15936$
- (viii) 1020×35
 $= (1000 + 20) \times 35 = 35 \times 1000 + 35 \times 20 = 35000 + 700 = 35700$
- (ix) $30 \times 9 + 60 \times 9$
 $= 9 \times (30 + 60) = 9 \times (90) = 810$
- (x) $23 \times 9 + 23 \times 1$
 $= 23 \times (9 + 1) = 23 \times 10 = 230$
- (xi) $15 \times 12 - 5 \times 12$
 $= 12 \times (15 - 5) = 12(10) = 12 \times 10 = 120$
- (xii) $96 \times 73 - 94 \times 73$
 $= 73 \times (96 - 94) = 73 \times 2 = 146$
- (xiii) $697 \times 8 + 697 \times 2$
 $= 697 \times (8 + 2) = 697(10) = 697 \times 10 = 6970$

5. (i) Associative property states that

If a, b and c are whole numbers, then

$$a + (b + c) = (a + b) + c$$

$$69 + 18 + 32$$

$$= 69 + (18 + 32)$$

$$= 69 + (50) = 69 + 50 = 119$$

(ii) Distributive property states that

If a, b and c are whole numbers, then

$$a \times (b - c) = a \times b - a \times c; \text{ if } b > c$$

$$67 \times 14 - 65 \times 14$$

$$= 14 (67 - 65) \text{ here } 67 > 65, a = 14, b = 67 \text{ and } c = 65$$

$$= 14 \times (2) = 14 \times 2 = 28$$

6. Multiplication can be thought of as repeated addition.

(i) $46 \times 982 + 27 \times 982 - 58 \times 982 - 15 \times 982$

Taking out 982 common from all the terms:

$$982 \times (46 + 27 - 58 - 15)$$

$$= 982 \times [(46 + 27) - (58 + 15)]$$

$$= 982 \times [73 - 73] = 982 [0] = 982 \times 0 = 0$$

$$\begin{aligned}
 \text{(ii)} \quad & 957 \times 10 \times 583 - 483 \times 9570 \\
 & = 9570 \times 583 - 483 \times 9570 \\
 & = 9570 (583 - 483) = 9570 \times 100 \\
 & = 957000
 \end{aligned}$$

$$\begin{aligned}
 7. \quad \text{(i)} \quad & 928 \times 857 \\
 & = 928 \times (850 + 7) \quad \begin{array}{r} 788800 \\ + 6496 \\ \hline 795296 \end{array} \\
 & = 928 \times 850 + 928 \times 7 \\
 & = 788800 + 6496 \\
 & = 795296
 \end{aligned}$$

$$\begin{aligned}
 \text{(ii)} \quad & 367 \times 10004 \\
 & = 367 \times (10000 + 4) \quad \begin{array}{r} 3670000 \\ + 1468 \\ \hline 3671468 \end{array} \\
 & = 367 \times 10000 + 367 \times 4 \\
 & = 3670000 + 1468 \\
 & = 3671468
 \end{aligned}$$

8. Total sets containing a pencil and a ruler = 25

Cost of each pencil = Rs. 2

Cost of each ruler = Rs. 8

$$\begin{aligned}
 \therefore \text{Total cost of 25 sets} &= \text{Rs. } 25 \times (8 + 2) \\
 &= \text{Rs. } 25 \times 10 \\
 &= \text{Rs. } 250
 \end{aligned}$$

9. People checked at checkpoint in 1 hour = 250

So, people checked at checkpoint in 1 day = $250 \times 24 = 6000$

So, the greatest number of people that can be checked in 5 days
 $= 6000 \times 5 = 30,000$ people.

10. Return gift packs contain 5 chocolates and 6 pens.

Number of things in 1 gift pack = $5 + 6$

\therefore Total number of things in 8 gift packs = $8 \times (5 + 6)$

By using distributive property

$$(8 \times 5) + (8 \times 6) = 40 + 48 = 88$$

11. Ashok buys = 20 notebooks + 20 pens.

Cost of each notebook = Rs. 45

Cost of each pen = Rs. 15

Cost of 20 notebooks = Rs. 20×45

Cost of 20 pens = Rs. 20×15

\therefore Total amount of money he spent = Rs. $20 \times 45 + 20 \times 15$

\therefore Total amount = Rs. $20 \times (45 + 15) = \text{Rs. } 20 (60) = \text{Rs. } 20 \times 60 = \text{Rs. } 1200$

Hence, amount of money he spent is Rs. 1200.

12. In a bouquet = 7 roses + 8 gladioli

In one bouquet = $7 + 8 = 15$ flowers

\therefore In 9 bouquets = $9 \times (7 + 8) = 9 \times (15) = 135$ flowers.

Hence, there are 135 flowers in 9 bouquets.

13. No. of boys in a class = 23

No. of girls in a class = 18

∴ Total number of boys and girls in a class = $23 + 18$

and total students in six classes = $6 \times (23 + 18)$

$$= 6 \times (41) = 6 \times 41 = 246$$

Hence, there are 246 students in six classes.

14. Number of sweets in each plate = 9

Out of 9, 3 sweets were rasgullas.

∴ Remaining sweets are burfees = $9 - 3 = 6$

So, number of burfees in 7 plates = $7 \times (9 - 3)$

$$= 7 \times (6) = 7 \times 6 = 42$$

Hence, 42 burfees were there in 7 plates.

15. Numbers between 10 and 20 are:

11, 12, 13, 14, 15, 16, 17, 18, 19.

(10 and 20 are not included because it is not between 10 – 20)

Check all the numbers one by one.

$$11 \rightarrow \frac{100}{11}, \text{Remainder} = 1; 11 \rightarrow \frac{122}{11}, \text{Remainder} = 1$$

When we have checked first number i.e., 11 and it is satisfying the required condition, so no need to check all the numbers.

∴ Required number = 11

16. Numbers between 13 and 20 are 14, 15, 16, 17, 18, 19

$$14 \rightarrow \frac{50}{14}, \text{Remainder} = 8; \rightarrow \frac{98}{14}, \text{Remainder} = 0$$

$$15 \rightarrow \frac{50}{15}, \text{Remainder} = 5; \rightarrow \frac{98}{15}, \text{Remainder} = 8$$

$$16 \rightarrow \frac{50}{16}, \text{Remainder} = 2; \rightarrow \frac{98}{16}, \text{Remainder} = 2$$

Same will be done for rest of the numbers.

∴ Required number = 16

17. Whole numbers are the set of natural numbers including zero also.

These are positive numbers.

(i) $a + b$, always a whole number.

(ii) $a - b$, may or may not be a whole number i.e.;

$a - b = \text{whole number if } a > b$

but $a - b \neq \text{whole number if } a < b$

(iii) $a \times b$, whole number

(iv) $2a + b$, whole number

- 18.** If any number added with itself, then the result will be a different number.
Ex. $2 + 2 = 4$; $1 + 1 = 2$
 $5 + 5 = 10$
but "0" is the only number which when added to itself remains same in the result.
i.e., $0 + 0 = 0$
 \therefore "p" = 0
- 19.** Cost of 1 chair = Rs. 180
Cost of 85 chairs = Rs. (85×180)
Cost of 1 table = Rs. 140
Cost of 25 tables = Rs. (25×140)
Total cost = $(85 \times 180) + (25 \times 140)$
 $= 15300 + 3500 = \text{Rs. } 18800$
Advanced money given = Rs. 2500
Remaining money to be given = $\text{Rs. } 18800 - \text{Rs. } 2500$
 $= \text{Rs. } 16300$
- 20.** Total budget for the annual day function of a school = Rs. 60,000
Rs. 14,500 was paid to tent house.
Rs. 10,400 to band party.
Rs. 5,000 for refreshments.
i.e., $\text{Rs. } 60,000 - \text{Rs. } (14,500 + 10,400 + 5,000)$
 $= \text{Rs. } 60,000 - \text{Rs. } 29,900$
 $= \text{Rs. } 30,100$