EXERCISE 4.3 PAGE: 4.14

1. Fill in the blanks to make each of the following a true statement:
(i) 785 × 0 = …..
(ii) 4567 × 1 = …..
(iii) 475 × 129 = 129 × …..
(iv) ….. × 8975 = 8975 × 1243
(v) 10 × 100 × …. = 10000
(vi) 27 × 18 = 27 × 9 + 27 × ….. + 27 × 5
(vii) 12 × 45 = 12 × 50 – 12 × …..
(viii) 78 × 89 = 78 × 100 – 78 × ….. + 78 × 5
(ix) 66 × 85 = 66 × 90 – 66 × ….. – 66
(x) 49 × 66 + 49 × 34 = 49 × (….. + …..)
Solution:

(i) 785 × 0 = 0

(ii) 4567 × 1 = 4567 based on multiplicative identity

(iii) 475 × 129 = 129 × 475 based on commutativity

(iv) 1243 × 8975 = 8975 × 1243 based on commutativity

(v) 10 × 100 × 10 = 10000

(vi) 27 × 18 = 27 × 9 + 27 × 4 + 27 × 5

(vii) 12 × 45 = 12 × 50 – 12 × 5

(viii) 78 × 89 = 78 × 100 – 78 × 16 + 78 × 5

(ix) 66 × 85 = 66 × 90 – 66 × 4 – 66

(x) 49 × 66 + 49 × 34 = 49 × (66 + 34)

2. Determine each of the following products by suitable rearrangements:
(i) 2 × 1497 × 50
(ii) 4 × 358 × 25
(iii) 495 × 625 × 16
(iv) 625 × 20 × 8 × 50
Solution:

(i) 2 × 1497 × 50
It can be written as
2 × 1497 × 50 = (2 × 50) × 1497
= 100 × 1497
= 149700

(ii) 4 × 358 × 25
It can be written as

4 × 358 × 25 = (4 × 25) × 358
= 100 × 358
= 35800

(iii) 495 × 625 × 16
It can be written as
495 × 625 × 16 = (625 × 16) × 495
= 10000 × 495
= 4950000

(iv) 625 × 20 × 8 × 50
It can be written as
625 × 20 × 8 × 50 = (625 × 8) × (20 × 50)
= 5000 × 1000
= 5000000

3. Using distributivity of multiplication over addition of whole numbers, find each of the following products:
(i) 736 × 103
(ii) 258 × 1008
(iii) 258 × 1008
Solution:

(i) 736 × 103
It can be written as
= 736 × (100 + 3)
By using distributivity of multiplication over addition of whole numbers
= (736 × 100) + (736 × 3)
On further calculation
= 73600 + 2208
We get
= 75808

(ii) 258 × 1008
It can be written as
= 258 × (1000 + 8)
By using distributivity of multiplication over addition of whole numbers
= (258 × 1000) + (258 × 8)
On further calculation
= 258000 + 2064
We get
= 260064

(iii) 258 × 1008
It can be written as
= 258 × (1000 + 8)
By using distributivity of multiplication over addition of whole numbers
= (258 × 1000) + (258 × 8)
On further calculation
= 258000 + 2064

We get
= 260064

4. Find each of the following products:
(i) 736 × 93
(ii) 816 × 745
(iii) 2032 × 613
Solution:

(i) 736 × 93
It can be written as
= 736 × (100 – 7)
By using distributivity of multiplication over subtraction of whole numbers
= (736 × 100) - (736 × 7)
On further calculation
= 73600 – 5152
We get
= 68448

(ii) 816 × 745
It can be written as
= 816 × (750 – 5)
By using distributivity of multiplication over subtraction of whole numbers
= (816 × 750) - (816 × 5)
On further calculation
= 612000 – 4080
We get
= 607920

(iii) 2032 × 613
It can be written as
= 2032 × (600 + 13)
By using distributivity of multiplication over addition of whole numbers
= (2032 × 600) + (2032 × 13)
On further calculation
= 1219200 + 26416
We get
= 1245616

5. Find the values of each of the following using properties:
(i) 493 × 8 + 493 × 2
(ii) 24579 × 93 + 7 × 24579
(iii) 1568 × 184 – 1568 × 84
(iv) 15625 × 15625 – 15625 × 5625
Solution:

(i) 493 × 8 + 493 × 2
It can be written as
= 493 × (8 + 2)
By using distributivity of multiplication over addition of whole numbers

= 493 × 10
On further calculation
= 4930

(ii) 24579 × 93 + 7 × 24579
It can be written as
= 24579 × (93 + 7)
By using distributivity of multiplication over addition of whole numbers
= 24579 × 100
On further calculation
= 2457900

(iii) 1568 × 184 – 1568 × 84
It can be written as
= 1568 × (184 - 84)
By using distributivity of multiplication over subtraction of whole numbers
= 1568 × 100
On further calculation
= 156800

(iv) 15625 × 15625 – 15625 × 5625
It can be written as
= 15625 × (15625 - 5625)
By using distributivity of multiplication over subrtaction of whole numbers
= 15625 × 10000
On further calculation
= 156250000

6. Determine the product of:
(i) the greatest number of four digits and the smallest number of three digits.
(ii) the greatest number of five digits and the greatest number of three digits.
Solution:

(i) We know that
Largest four digit number = 9999
Smallest three digit number = 100
Product of both = 9999 × 100 = 999900

Hence, the product of the greatest number of four digits and the smallest number of three digits is 999900.

(ii) We know that
Largest five digit number = 99999
Largest three digit number = 999
Product of both = 99999 × 999
It can be written as
= 99999 × (1000 – 1)
By using distributivity of multiplication over addition subrtaction of whole numbers
= (99999 × 1000) – (99999 × 1)
On further calculation
= 99999000 – 99999

We get
= 99899001

7. In each of the following, fill in the blanks, so that the statement is true:
(i) (500 + 7) (300 – 1) = 299 × …..
(ii) 888 + 777 + 555 = 111 × …..
(iii) 75 × 425 = (70 + 5) (….. + 85)
(iv) 89 × (100 – 2) = 98 × (100 - …..)
(v) (15 + 5) (15 – 5) = 225 - …..
(vi) 9 × (10000 + …..) = 98766
Solution:

(i) By considering LHS
(500 + 7) (300 – 1)
We get
= 507 × 299
By using commutativity
= 299 × 507

(ii) By considering LHS
888 + 777 + 555
We get
= 111 (8 + 7 + 5)
By using distributivity
= 111 × 20

(iii) By considering LHS
75 × 425
We get
= (70 + 5) × 425
It can be written as
= (70 + 5) (340 + 85)

(iv) By considering LHS
89 × (100 – 2)
We get
= 89 × 98
It can be written as
= 98 × 89
By using commutativity
= 98 × (100 – 11)

(v) By considering LHS
(15 + 5) (15 – 5)
We get
= 20 × 10
On further calculation
= 200
It can be written as
= 225 – 25

(vi) By considering LHS
9 × (10000 + 974) = 98766

8. A dealer purchased 125 colour television sets. If the cost of each set is Rs 19820, determine the cost of all sets together.
Solution:

It is given that
Cost of each television set = Rs 19820
So we get
Cost of 125 television sets = 19820 × 125
It can be written as
= 19820 × (100 + 25)
By using distributivity of multiplication over addition of whole numbers
= (19820 × 100) + (19820 × 25)
On further calculation
= 1982000 + 495500
So we get
= Rs 2477500

9. The annual fee charged from a student of class VI in a school is Rs 8880. If there are, in all, 235 students in class VI, find the total collection.
Solution:

Annual fee per student = Rs 8880
So we get
Annual fee charged for 235 students = 8880 × 235 = 2086800

Therefore, the total collection is Rs 2086800.

10. A group housing society constructed 350 flats. If the cost of construction for each flat is Rs 993570, what is the total cost of construction of all the flats.
Solution:

Cost of construction for each flat = Rs 993570
Number of flats constructed = 350
So we get
Cost of construction of 350 flats = 993570 × 350 = Rs 347749500

Therefore, the total cost of construction of all the flats is Rs 347749500.

11. The product of two whole numbers is zero. What do you conclude?
Solution:

The product of two whole numbers is zero, which means that at least one number or both of them are zero.

12. What are the whole numbers which when multiplied with itself gives the same number?
Solution:

Two numbers when multiplied with itself gives the same number.

For example: 0 × 0 = 0 and 1 × 1 = 1

13. In a large housing complex, there are 15 small buildings and 22 large building. Each of the large buildings has 10 floors with 2 apartments on each floor. Each of the small buildings has 12 floors with 3 apartments on each floor. How many apartments are there in all.
Solution:

It is given that
No. of large buildings = 22
No. of small buildings = 15
No. of floors in 1 large building = 10
No. of apartments on 1 floor = 2
So total apartment in 1 large building = 10 × 2 = 20

The same way
No. of apartments in 1 small building = 12 × 3 = 36
So the total apartment in entire housing complex = (22 × 20) + (15 × 36) = 440 + 540 = 980

Therefore, there are 980 apartments in all.