Exercise 4.3

Question: 1

Fill in the blanks to make each of the following a true statement:

Solution:

(i) 785 × 0 = 0

(ii) 4567 × 1 = 4567 (Multiplicative identity)

(iii) 475 × 129 = 129 × 475 (Commutativity)

(iv) 1243 × 8975 = 8975 × 1243 (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)

Question: 2

Determine each of the following products by suitable rearrangements:

Solution:

(i) 2 × 1497 × 50

= (2 × 50) × 1497 = 100 × 1497 = 149700

(ii) 4 × 358 × 25

= (4 × 25) × 358 = 100 × 358 = 35800

(iii) 495 × 625 × 16

= (625 × 16) × 495 = 10000 × 495 = 4950000

(iv) 625 × 20 × 8 × 50

= (625 × 8) × (20 × 50) = 5000 × 1000 = 5000000

Question: 3

Using distributivity of multiplication over addition of whole numbers, find each of the following products:

Solution:

(i) 736 × 103 = 736 × (100 + 3)

{Using distributivity of multiplication over addition of whole numbers}

= (736 × 100) + (736 × 3)

= 73600 + 2208 = 75808

(ii) 258 × 1008 = 258 × (1000 + 8)

{Using distributivity of multiplication over addition of whole numbers}

= (258 × 1000) + (258 × 8)

= 258000 + 2064 = 260064

(iii) 258 × 1008 = 258 × (1000 + 8)

{Using distributivity of multiplication over addition of whole numbers}

= (258 × 1000) + (258 × 8)

= 258000 + 2064 = 260064

Question: 4

Find each of the following products:

Solution:

(i) 736 × 93

Since, 93 = (100 – 7)

Therefore, 736 × (100 – 7)

= (736 × 100) – (736 × 7)

(Using distributivity of multiplication over subtraction of whole numbers)

= 73600 – 5152 = 68448

(ii) 816 × 745

Since, 745 = (750 – 5)

Therefore, 816 × (750 – 5)

= (816 × 750) – (816 × 5)

(Using distributivity of multiplication over subtraction of whole numbers)

= 612000 – 4080 = 607920

(iii) 2032 × 613

Since, 613 = (600 +13)

Therefore, 2032 × (600 + 13)

= (2032 × 600) + (2032 × 13)

= 1219200 + 26416 = 1245616

Question: 5

Find the values of each of the following using properties:

Solution:

(i) 493 × 8 + 493 × 2

= 493 × (8 + 2)

(Using distributivity of multiplication over addition of whole numbers)

= 493 × 10 = 4930

(ii) 24579 × 93 + 7 × 24579

= 24579 × (93 + 7)

(Using distributivity of multiplication over addition of whole numbers)

= 24579 × 100 = 2457900

(iii) 1568 × 184 – 1568 × 84

= 1568 × (184 – 84)

(Using distributivity of multiplication over subtraction of whole numbers)

= 1568 × 100 = 156800

(iv) 15625 × 15625 – 15625 × 5625

= 15625 × (15625 – 5625)

(Using distributivity of multiplication over subtraction of whole numbers)

= 15625 × 10000 = 156250000

Question: 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) The largest four-digit number = 9999

The smallest three – digit number = 100

Therefore, Product of the smallest three-digit number and the largest four-digit number = 9999 × 100 = 999900

(ii) The largest five – digit number = 9999

The largest number of three digits = 999

Therefore, Product of the largest three-digit number and the largest five-digit number

= 9999 × 999

= 9999 × (1000 — 1)

= (9999 × 1000) — (9999 × 1)

= 9999000 – 9999

= 9989001

Question: 7

In each of the following, fill in the blanks, so that the statement is true:

Solution:

(i) (500 + 7) (300 – 1)

= 507 × 299

= 299 × 507 (Commutativity)

(ii) 888 + 777 + 555

= 111 (8 + 7 + 5)

= 111 × 20 (Distributivity)

(iii) 75 × 425

= (70 + 5) × 425

= (70 + 5) (340 + 85)

(iv) 89 × (100 – 2)

= 89 × 98

= 98 × 89

= 98 × (100 – 11) (Commutativity)

(v) (15 + 5) (15 – 5)

= 20 × 10

= 200

= 225 – 25

(vi) 9 × (10000 + 974)

= 98766

Question: 8

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

Solution:

Cost of 1 color television set = Rs 19820

Therefore, Cost of 125 color television sets = Rs (19820 × 125)

= Rs 19820 × (100 + 25)

= Rs (19820 × 100) + (19820 × 25)

= Rs 1982000 + 495500

= Rs 2477500

Question: 9

The annual fee charged from a student of class 6^{th} in a school is Rs 8880. If there are, in all, 235 students in class 6^{th}, find the total collection.

Solution:

Fees charged from 1 student = Rs 8880

Therefore, Fees charged from 235 students = Rs 8880 × 235

= 2086800

Thus, the total collection from class VI students is Rs 2086800.

Question: 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 of 1 flat = Rs 993,570

Total number of flats constructed = 350

Total cost of construction of 350 flats = Rs (993,570 × 350)

= Rs 347,749,500

Question: 11

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

Solution:

If the product of two whole numbers is zero, then it means that either one of them is zero or both of them are zero.

Question: 12

What are the whole numbers which when multiplied with itself gives the same number?

Solution:

There are two numbers which when multiplied with themselves give the same numbers.

(i) $0 \times 0 = 0$

(ii) $1 \times 1 = 1$

Question: 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:

Number of large buildings = 22

Number of small buildings = 15

Number of floors in 1 large building = 10

Number of apartments on 1 floor = 2

Therefore, Total apartments in 1 large building = $10 \times 2 = 20$

Similarly,

Total apartments in 1 small building = $12 \times 3 = 36$

Therefore, Total apartments in the entire housing complex = $(22 \times 20) + (15 \times 36)$

$= 440 + 540$

$= 980$