

Exercise 4.3

Q.1 Fill in the blanks to make each of the following a true statement.

(i) $785 \times 0 = \dots$ (ii) $4567 \times 1 = \dots$

(iii) $475 \times 129 = 129 \times \dots$ (iv) $\dots \times 8975 = 8975 \times 1243$

(v) $10 \times 100 \times \dots = 10000$ (vi) $27 \times 18 = 27 \times 9 + 27 \times \dots + 27 \times 5$

(vii) $12 \times 45 = 12 \times 50 - 12 \times \dots$ (viii) $78 \times 89 = 78 \times 100 - 78 \times \dots + 78 \times 5$

(ix) $66 \times 85 = 66 \times 90 - 66 \times \dots - 66$

(x) $49 \times 66 + 49 \times 34 = 49 \times (\dots + \dots)$

Solution: (i) $785 \times 0 = 0$ (ii) $4567 \times 1 = 4567$

(iii) $475 \times 129 = 129 \times 475$ (iv) $1243 \times 8975 = 8975 \times 1243$

(v) $10 \times 100 \times 10 = 10000$

(vi) $27 \times 18 = 27 \times 9 + 27 \times 4 + 27 \times 5$

(vii) $12 \times 45 = 12 \times 50 - 12 \times 5$

(viii) $78 \times 89 = 78 \times 100 - 78 \times 16 + 78 \times 5$

(ix) $66 \times 85 = 66 \times 90 - 66 \times 4 - 66$

(x) $49 \times 66 + 49 \times 34 = 49 \times (66 + 34)$

Q.2 Determine each of the following products by suitable rearrangements:

(i) $2 \times 1497 \times 50$ (ii) $4 \times 358 \times 25$ (iii) $495 \times 625 \times 16$

(iv) $625 \times 20 \times 8 \times 50$

Solution: (i) $2 \times 1497 \times 50$

By rearranging terms,

$$\Rightarrow (2 \times 50) \times 1497 = 100 \times 1497 = 149700$$

(ii) $4 \times 358 \times 25$

$$= (4 \times 25) \times (358) \quad (\text{By Rearranging})$$

$$= 100 \times 358 = 35800$$

(iii) $495 \times 625 \times 16$

$$= (625 \times 16) \times 495 \quad (\text{By Rearranging})$$

$$= 10000 \times 495 = 4950000$$

(iv) $625 \times 20 \times 8 \times 50$

$$= (625 \times 8) \times (20 \times 50) \quad (\text{By rearranging terms})$$

$$= 5000 \times 1000 = 5000000$$

Q.3 Using distributivity of multiplication over addition of whole numbers, find each of the following products:

$$(i) 736 \times 103 = 736 \times (100 + 3) \quad (\text{By Distributive law})$$

$$= (736 \times 100) + (736 \times 3)$$

$$= 73600 + 2208 = 75808$$

$$(ii) 258 \times 1008 = 258 \times (1000 + 8) \quad (\text{By distributive law})$$

$$= (258 \times 1000) + (258 \times 8)$$

$$= 258000 + 2064 = 260064$$

Q.4 Find each of the following products:

(i) 736×93 (ii) 816×745 (iii) 2032×613

Solution (i) $736 \times 93 = 736 \times (100 - 7)$ (using Distributivity)
 $= 73600 - 5152$
 $= 68448$

(ii) $816 \times 745 = 816 \times (750 - 5)$ (using Distributivity)
 $= (816 \times 750) - (816 \times 5)$
 $= 612000 - 4080 = 607920$

(iii) $2032 \times 613 = 2032 \times (600 + 13)$ (using Distributivity)
 $= (2032 \times 600) + (2032 \times 13)$
 $= 1219200 + 26416 = 1245616$

Q.5 Find the value of each of the following using properties:

(i) $493 \times 8 + 493 \times 2$

(ii) $24759 \times 93 + 7 \times 24759$

(iii) $1568 \times 184 - 1568 \times 84$

(iv) $15625 \times 15625 - 15625 \times 5625$

Solution (i) $493 \times 8 + 493 \times 2$

$= 493 \times (8 + 2)$ (By using distributive Property)

$= 493 \times 10$

$= 4930$

$$(i) \quad 24579 \times 93 + 7 \times 24579$$

$$= 24579$$

$$= 24579 \times (93+7) \quad (\text{Using Distributive Property})$$

$$= 24579 \times 100$$

$$= 2457900$$

$$(ii) \quad 1568 \times 184 - 1568 \times 84$$

$$= 1568 \times (184-84) \quad (\text{Using Distributive Property})$$

$$= 1568 \times 100$$

$$= 156800$$

$$(iv) \quad 15625 \times 15625 - 15625 \times 5625$$

$$= 15625 (15625 - 5625) \quad (\text{Using distributive property})$$

$$= 15625 \times 10000$$

$$= 156250000$$

Q.6 Determine the product of

(i) The greatest number of four digits and smallest number of three digits.

(ii) The greatest number of five digits and greatest number of 3 digits.

Solution: (i) greatest no. of 4 digits = 9999

Smallest no. of 3 digits = 100

Product = 9999×100

= 999900

(ii) The greatest no. of 5 digits = 99999
greatest no. of 3 digits = 999

$$\begin{aligned}\therefore \text{Product} &= 99999 \times 999 \\ &= 99999 \times (1000 - 1) \quad (\text{Distributive}) \\ &= (99999 \times 1000) - (99999 \times 1) \\ &= 99999000 - 99999 \\ &= 99899001\end{aligned}$$

Q.7 In each of the following, fill in the blanks, so that the statement is true.

- (i) $(500+7)(300-1) = 299 \times \dots$
 (ii) $888 + 777 + 555 = 111 \times \dots$
 (iii) $75 \times 425 = (70+5)(\dots + 85)$
 (iv) $89 \times (100-2) = 98 \times (100 - \dots)$
 (v) $(15+5)(15-5) = 225 - \dots$
 (vi) $9 \times (10000 + \dots) = 98766$

Solution: (i) $(500+7)(300-1)$
 $= 507 \times 299$

It can be written as 299×507 (commutative)
 hence $(500+7)(300-1) = 299 \times \underline{507}$

(ii) $888 + 777 + 555$
 $= 111(8+7+5) = 111 \times \underline{20}$ (By using distributivity)

$$(iii) 75 \times 425 = (70+5)(\dots+85)$$

$$\begin{aligned} \text{here } 75 \times 425 \\ = (70+5)(\underline{340+85}) \end{aligned}$$

$$\begin{aligned} (iv) 89 \times (100-2) \\ = 89 \times 98 \\ = 98 \times 89 \text{ (using Commutativity)} \\ = 98 \times (100-11) \end{aligned}$$

$$(v) (15+5)(15-5) = 225 - \dots$$

$$\begin{aligned} \text{here } (15+5)(15-5) \\ = 20 \times 10 \\ = 200 \\ = 225 - \underline{25} \end{aligned}$$

$$(vi) 9 \times (10000 + \dots) = 98766$$

$$\text{here } 9 \times (10000 + \underline{974}) = 98766$$

Q8 A dealer purchased 125 Colour television sets.

If the cost of each set is Rs. 19820, determine the cost of all sets together.

Solution: Cost of 1 television set = Rs. 19820

$$\begin{aligned} \text{So, Cost of 125 television sets} &= 19820 \times 125 \\ &= 19820 \times (100+25) \text{ (using distributive)} \\ &= (19820 \times 100) + (19820 \times 25) \\ &= 1982000 + 495500 = \text{Rs. } 2477500 \end{aligned}$$

Q.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: Fee charged from each student = Rs 8880

Total students = 235

$$\therefore \text{Total Collection} = 8880 \times 235$$

$$= 8880 \times (200 + 35)$$

$$= 1776000 + 310800$$

$$= \text{Rs. } 2,086,800$$

Q.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: It is given that

No. of flats constructed = 350

Cost of construction of each flat = Rs. 993570

$$\therefore \text{Total Cost of Construction} = 993570 \times 350$$

$$= 993570 \times (300 + 50)$$

$$= (993570 \times 300) + (993570 \times 50)$$

$$= 298071000 + 49678500$$

$$= \text{Rs. } 34,77,49,500$$

Q.11 The Product of two whole numbers is zero. What do you conclude?

Solution: The Product of two whole numbers is zero only if one of them is zero.

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

Solution 0 and 1

Q.13 In a large housing complex, there are 15 small buildings and 22 large buildings. 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: We are given, No. of large buildings = 22

No. of small buildings = 15

No. of floors in one building = 10

No. of apartments on 1 floor = 2

∴ Total apartments in 1 large building = 20

Same way, No. of apartments in 1 small building
= $12 \times 3 = 36$

∴ Total apartments in housing complex

$$= (22 \times 20) + (15 \times 36)$$

$$= 440 + 540 = 980$$