

EXERCISE 5(C)

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1. Fill in the blanks :

(i) $42 \times 0 = \dots\dots\dots$

(ii) $592 \times 1 = \dots\dots\dots$

(iii) $328 \times 573 = \dots\dots\dots \times 328$

(iv) $229 \times \dots\dots\dots = 578 \times 229$

(v) $32 \times 15 = 32 \times 6 + 32 \times 7 + 32 \times \dots\dots\dots$

(vi) $23 \times 56 = 20 \times 56 + \dots\dots\dots \times 56$

(vii) $83 \times 54 + 83 \times 16 = 83 \times (\dots\dots\dots) = 83 \times \dots\dots\dots = \dots\dots\dots$

(viii) $98 \times 273 - 75 \times 273 = (\dots\dots\dots) \times 273 = \dots\dots\dots \times 273$

Solution:

(i) $42 \times 0 = 0$

(By closure property 0)

(ii) $592 \times 1 = 592$

(By closure property 1)

(iii) $328 \times 573 = 573 \times 328$

(By commutative law of multiplication)

(iv) $229 \times 578 = 578 \times 229$

(By commutative law of multiplication)

(v) $32 \times 15 = 32 \times 6 + 32 \times 7 + 32 \times 2$

(By commutative law of multiplication)

(vi) $23 \times 56 = 20 \times 56 + 3 \times 56$

(By distributive law of multiplication)

(vii) $83 \times 54 + 83 \times 16 = 83 \times (54 + 16) = 83 \times 70 = 5810$

(viii) $98 \times 273 - 75 \times 273 = (98 - 75) \times 273 = 23 \times 273$

2. By re-arranging the given numbers, evaluate :

(i) $2 \times 487 \times 50$

(ii) $25 \times 444 \times 4$

(iii) $225 \times 20 \times 50 \times 4$

Solution:

(i) $2 \times 487 \times 50$

$2 \times 50 = 100$

$2 \times 487 \times 50 = (2 \times 50) \times 487$

$= 100 \times 487$

$= 48700$

(ii) $25 \times 444 \times 4$

$25 \times 4 = 100$

$25 \times 444 \times 4 = (25 \times 4) \times 444$

$= 100 \times 444$

$= 44400$

(iii) $225 \times 20 \times 50 \times 4$

$(225 \times 4) \times (20 \times 50) = 900 \times 1000$

$= 900000$

3. Use distributive law to evaluate:

(i) 984×102

(ii) 385×1004

(iii) 446×10002

Solution:

(i) 984×102

$$= 984 \times (100 + 2)$$

$$= 984 \times 100 + 984 \times 2$$

$$= 98400 + 1968$$

$$= 100,368$$

(ii) 385×1004

$$= 385 \times (1000 + 4)$$

$$= 385 \times 1000 + 385 \times 4$$

$$= 385000 + 1540$$

$$= 386540$$

(iii) 446×10002

$$= 446 \times (10000 + 2)$$

$$= 446 \times 10000 + 446 \times 2$$

$$= 4460000 + 892$$

$$= 4460892$$

4. Evaluate using properties:

(i) 548×98

(ii) 924×988

(iii) 3023×723

Solution:

(i) 548×98

$$= (500 + 40 + 8) \times 98$$

$$= 500 \times 98 + 40 \times 98 + 8 \times 98$$

$$= 49000 + 3920 + 784$$

$$= 53704$$

(ii) 924×988

$$= (900 + 20 + 4) \times 988$$

$$= 900 \times 988 + 20 \times 988 + 4 \times 988$$

$$= 889200 + 19760 + 3952$$

$$= 912912$$

(iii) 3023×723

$$= (3000 + 20 + 3) \times 723$$

$$= 3000 \times 723 + 20 \times 723 + 3 \times 723$$

$$= 2169000 + 14460 + 2169$$

$$= 2185629$$

5. Evaluate using properties :

(i) $679 \times 8 + 679 \times 2$

(ii) $284 \times 12 - 284 \times 2$

(iii) $55873 \times 94 + 55873 \times 6$

(iv) $7984 \times 15 - 7984 \times 5$

(v) $8324 \times 1945 - 8324 \times 945$

(vi) $3333 \times 987 + 13 \times 3333$

Solution:

(i) $679 \times 8 + 679 \times 2$

$= 679 \times (8 + 2)$ (using distributivity)

$= 679 \times 10$

$= 6790$

(ii) $284 \times 12 - 284 \times 2$

$= 284 \times (12 - 2)$ (using distributivity)

$= 284 \times 10$

$= 2840$

(iii) $55873 \times 94 + 55873 \times 6$

$= 55873 \times (94 + 6)$ (using distributivity)

$= 55873 \times 100$

$= 5587300$

(iv) $7984 \times 15 - 7984 \times 5$

$= 7984 \times (15 - 5)$ (using distributivity)

$= 7984 \times 10$

$= 79840$

(v) $8324 \times 1945 - 8324 \times 945$

$= 8324 \times (1945 - 945)$ (using distributivity)

$= 8324 \times 1000$

$= 8324000$

(vi) $3333 \times 987 + 13 \times 3333$

$= 3333 \times (987 + 13)$ (using distributivity)

$= 3333 \times 1000$

$= 3333000$

6. Find the product of the :

(i) greatest number of three digits and smallest number of five digits.

(ii) greatest number of four digits and the greatest number of three digits.

Solution:

(i) Greatest number of three digits = 999

Smallest number of five digits = 10000

$$\begin{aligned}\text{Required product} &= 999 \times 10000 \\ &= 9990000\end{aligned}$$

(ii) Greatest number of four digits = 9999

Greatest number of three digits = 999

$$\begin{aligned}\text{Required product} &= 9999 \times 999 \\ &= 9999 \times (1000 - 1) \\ &= 9999 \times 1000 - 9999 \times 1 && \text{(using distributivity)} \\ &= (10000 - 1) \times 1000 - (10000 - 1) \times 1 \\ &= 10000000 - 1000 - 10000 + 1 \\ &= 10000001 - 11000 \\ &= 9989001\end{aligned}$$

7. Fill in the blanks:

(i) $(437 + 3) \times (400 - 3) = 397 \times \dots\dots\dots$

(ii) $66 + 44 + 22 = 11 \times (\dots\dots\dots) = 11 \times \dots\dots\dots$

Solution:

(i) $(437 + 3) \times (400 - 3) = 397 \times 400$

(ii) $66 + 44 + 22 = 11 \times (6 + 4 + 2) = 11 \times 12 = 132$

8. Evaluate:

(i) 355×18

(ii) 6214×12

(iii) 15×49372

(iv) 9999×8

Solution:

(i) 355×18

This can be written as

$$\begin{aligned}&= (300 + 50 + 5) \times 18 \\ &= (300 \times 18) + (50 \times 18) + (5 \times 18) \\ &= 5400 + 900 + 90 \\ &= 6390\end{aligned}$$

(ii) 6214×12

This can be written as

$$\begin{aligned}&= (6000 + 200 + 10 + 4) \times 12 \\ &= (6000 \times 12) + (200 \times 12) + (10 \times 12) + (4 \times 12) \\ &= 72000 + 2400 + 120 + 48 \\ &= 74568\end{aligned}$$

(iii) 15×49372

This can be written as

$$\begin{aligned} &= 15 \times (40000 + 9000 + 300 + 70 + 2) \\ &= (15 \times 40000) + (15 \times 9000) + (15 \times 300) + (15 \times 70) + (15 \times 2) \\ &= 600000 + 135000 + 4500 + 1050 + 30 \\ &= 740580 \end{aligned}$$

(iv) 9999×8

This can be written as

$$\begin{aligned} &= (9000 + 900 + 90 + 9) \times 8 \\ &= (9000 \times 8) + (900 \times 8) + (90 \times 8) + (9 \times 8) \\ &= 72000 + 7200 + 720 + 72 \\ &= 79992 \end{aligned}$$

