

Multiplication

Warm-up Exercise

1. (a)

	T	O
	4	2
×		2
	8	4

(b)

H	T	O
	9	3
×		4
3	7	2

(c)

	H	T	O
	3	4	2
×			2
	6	8	4

(d)

	H	T	O
	2	5	8
×			2
	5	1	6

2. (b)

	H	T	O
	3	1	5
×			3
		1	5
		3	0
+	9	0	0
	9	4	5

(c)

	H	T	O
	1	5	4
×			6
		2	4
	3	0	0
+	6	0	0
	9	2	4

3. (a) $40 \times 20 = 800$ (b) $13 \times 30 = 390$ (c) $25 \times 40 = 1000$ (d) $200 \times 8 = 1600$ (e) $400 \times 3 = 1200$ (f) $60 \times 90 = 5400$

4. (a)

	H	T	O
	2	1	4
×			4
		1	6
		4	0
+	8	0	0
	8	5	6

(b)

	H	T	O
	1	6	5
×			5
		2	5
	3	0	0
+	5	0	0
	8	2	5

5. Cost of 1 book = ₹ 125

So, cost of such 8 books = $8 \times ₹ 125 = ₹ 1000$ 7. Since, $248 \times 2 = 496$ and $198 \times 3 = 594$ Here, $594 > 496$, therefore, $198 \times 3 > 248 \times 2$

Checkpoint 3A

1. (a)

Th	H	T	O
		2	9
	×	6	3
1	8	2	7

(b)

Th	H	T	O
		9	1
	×	2	1
1	9	1	1

(c)

Th	H	T	O
		9	1
	×	1	3
1	1	8	3

(d)

Th	H	T	O
		8	5
	×	2	1
1	7	8	5

(g)

Th	H	T	O
		6	2
×		2	4
1	4	8	8

(h)

Th	H	T	O
		7	1
×		1	9
1	3	4	9

2. (a)

×	20	5
10	200	50
6	120	30

Thus, $25 \times 16 = 200 + 120 + 50 + 30 = 400$

(b)

×	40	9
10	400	90
3	120	27

Thus, $49 \times 13 = 400 + 120 + 90 + 27 = 637$

Checkpoint 3B

1. $256 \times 49 = 12544$
2. $308 \times 63 = 19404$
3. $613 \times 29 = 17777$

Checkpoint 3C

1. $128 \times 423 = 54144$
2. $481 \times 112 = 53872$
3. $342 \times 158 = 54036$

Checkpoint 3D

1. Cost of 1 toy = ₹ 129
Now, cost of 453 such toys = $453 \times ₹ 129$
 $= ₹ 58,437$
2. Number of tickets sold = 7525
Cost of 1 ticket = ₹ 120
Total amount collected by the shopkeeper by selling 7525 tickets = $7525 \times ₹ 120$
 $= ₹ 9,03,000$
3. A passenger aircraft flies in 1 hour = 810 km
So, it will fly in 13 hours = 13×810 km
 $= 10530$ km
4. Number of bottles contained in a box = 75 bottles
So, number of bottles contained in 1025 such boxes = $1025 \times 75 = 76875$ bottles
6. Mr Shyam Sunder's monthly salary = ₹ 40,545
His annual (or 12 months) income = $12 \times ₹ 40,545 = ₹ 4,86,540$

Checkpoint 3E

2. (a) $78 \times 9 = 78 \times (10 - 1) = 780 - 78 = 702$
(b) $158 \times 3 = (160 - 2) \times 3 = 480 - 6 = 474$
(d) $25 \times 4 \times 123 = 100 \times 123 = 12300$
(e) $173 + 173 + 173 + 3 = 173(1+1+1) + 3$
 $= 173 \times 3 + 3 = 519 + 3 = 522$

3. $16 \times 5 = 80$ and $5 \times 16 = 80$

Here, we can see LHS = RHS while changing the order of the multiplicand and the multiplier.

Therefore, order property of the multiplication is used here.

Checkpoint 3F

1. (a) Given, 269×48

Estimating factors to their highest place, we have

$$300 \times 50 = 15000$$

- (d) Given, 725×485

Estimating factors to their highest place, we have

$$700 \times 500 = 350000$$

2. (a) Given, 193×27

Estimating factors to their highest place, we have

$$200 \times 30 = 6000$$

$$\text{Actual product} = 193 \times 27 = 5211$$

$$\text{Difference in actual product and estimated product} = 6000 - 5211 = 789$$

Let Us Assess

1. (a)

Th	H	T	O
		4	8
	$\times$	6	3
3	0	2	4

- (b)

Th	H	T	O
	2	4	8
	$\times$	2	9
7	1	9	2

- (c)

L	TTh	Th	H	T	O
		1	7	0	9
			$\times$	8	8
1	5	0	3	9	2

- (d)

TTh	Th	H	T	O
		1	0	2
	$\times$	4	0	3
4	1	1	0	6

2. (a)

$\times$	50	6
10	500	60
3	150	18

Thus, $56 \times 13 = 500 + 150 + 60 + 18 = 728$

(c)

$\times$	100	60	6
20	2000	1200	120
5	500	300	30

Thus, $166 \times 25 = 2000 + 500 + 1200 + 300 + 120 + 30 = 4150$

3. (a) $14 \text{ by } 1000 = 14 \times 1000 = 14000$

(c) $148 \text{ by } 8000 = 148 \times 8000 = 1184000$

4. (d) Given, 761×162

Estimating factors to their highest place, we have

$$800 \times 200 = 160000$$

6. $(3 \times 60) + (3 \times 5) = 180 + 15 = 195$

And $(2 \times 65) + (1 \times 65) = 130 + 65 = 195$

Here, we can see both the products are the same.

Also, here distributive property of multiplication over addition is used in both the products.

7. Number of days in the month February of the year, 2024 = 29

Distance travelled by Hariram every day to reach office from his home = $2 \text{ km} = 2 \times 1000 \text{ m}$

Distance travelled by Hariram every day to come back home from his office
= $2 \text{ km} = 2 \times 1000 \text{ m}$

Total distance travelled by him in a day
= $2 \times 1000 + 2 \times 1000$

$$= (2 + 2) \times 1000 \text{ m}$$

Now, distance travelled by him in the month
= $29 \times 4 \times 1000 \text{ m}$

$$= 1,16,000 \text{ m}$$

9. (a) $25 \times 105 \times 8 = 25 \times 840$

$$= 21000$$

(b) $25 \times 105 \times 8 = 25 \times 8 \times 105 = 200 \times 105 = 21000$

10. Given, 792×145

Actual product = $792 \times 145 = 114840$

Estimated product = $800 \times 100 = 80000$

Here, (Actual) $114840 > 80000$ (Estimated)

HOTS

1. Cost of 1 chair and 1 table = ₹ 225 + ₹ 355

Now, cost of 5 chairs and 5 tables

$$= 5 \times (\text{₹ } 225 + \text{₹ } 355)$$

$$= 5 \times \text{₹ } 580 = \text{₹ } 2900$$

Let's Work in Mind

1. 3 times 8 tens = 3 times 8×10

$$= 3 \times 80 = 240$$

2. 6 times 10 hundreds = 6 times 10×100

$$= 6 \times 1000 = 6000$$

3. $125 \times 4 \times 3 = 500 \times 3 = 1500$

4. Cost of 1 glue stick = ₹ 18

Now, cost of $(10 + 5)$ glue sticks

$$= (10 + 5) \times \text{₹ } 18$$

$$= \text{₹ } 180 + \text{₹ } 90 = \text{₹ } 270$$

5. Shanaya has total money = 35 hundred-rupee notes + 35 one-rupee coins

$$= 35 \times \text{₹ } 100 + 35 \times \text{₹ } 1$$

$$= \text{₹ } 3500 + \text{₹ } 35 = \text{₹ } 3535$$

6. $101 \times 11 = (100 + 1) \times 11 = 1100 + 11 = 1111$

Thus, there is no zeros in the product of 101×11 .