

5

More on Multiplication

MULTIPLYING A 2-DIGIT NUMBER BY A 1-DIGIT NUMBER

In this chapter, we extend our study to the multiplication of 2- and 3-digit numbers by a 1-digit number.

Study the following examples.

1.

	T	O
2	1	
×	3	
6	3	

Step 1: Multiply the ones. $3 \times 1 \text{ one} = 3 \text{ ones}$
Write 3 in the ones place.

Step 2: Multiply the tens. $3 \times 2 \text{ tens} = 6 \text{ tens}$
Write 6 in the tens place.

2.

	H	T	O
		5	0
×		7	
3	5	0	

Step 1: Multiply the ones. $7 \times 0 \text{ ones} = 0 \text{ ones}$
Write 0 in the ones place.

Step 2: Multiply the tens. $7 \times 5 \text{ tens} = 35 \text{ tens}$
Write 5 in the tens place and 3 in the hundreds place.

Exercise 5A

Multiply:

1.

	T	O
3	2	
×	3	
9	6	

2.

	T	O
2	3	
×	3	
6	9	

3.

	T	O
2	4	
×	2	
4	8	

4.

	H	T	O
		4	3
×		3	
1	2	9	

5.

	H	T	O
		7	0
×			4
	2	8	0

6.

	H	T	O
		9	2
×			3
	2	7	6

7.

	H	T	O
		2	0
×			8
	1	6	0

8.

	H	T	O
		5	1
×			9
	4	5	9

9.

	H	T	O
		4	1
×			8
	3	2	8

10.

	H	T	O
		8	0
×			3
	2	4	0

11.

	H	T	O
		7	2
×			4
	2	8	8

12.

	H	T	O
		6	1
×			8
	4	8	8

13.

	H	T	O
		7	1
×			9
	6	3	9

14.

	H	T	O
		8	1
×			6
	4	8	6

15.

	H	T	O
		8	3
×			2
	1	6	6

16.

	H	T	O
		9	1
×			8
	7	2	8

MULTIPLYING A 3-DIGIT NUMBER BY A 1-DIGIT NUMBER

Let us multiply 432 by 2.

Step 1: Arrange the numbers as shown on the right.

Step 2: Multiply the ones.

$$2 \times 2 \text{ ones} = 4 \text{ ones}$$

Write 4 in the ones place.

Step 3: Multiply the tens.

$$2 \times 3 \text{ tens} = 6 \text{ tens}$$

Write 6 in the tens place.

Step 4: Multiply the hundreds.

$$2 \times 4 \text{ hundreds} = 8 \text{ hundreds}$$

Write 8 in the hundreds place.

	H	T	O
	4	3	2
×			2
	8	6	4

So, $432 \times 2 = 864$.

Exercise 5B



Multiply:

1.

	H	T	O
243	2	4	3
×			2
	4	8	6

2.

	H	T	O
311	3	1	1
×			3
	9	3	3

3.

	H	T	O
222	2	2	2
×			4
	8	8	8

4.

	H	T	O
434	4	3	4
×			2
	8	6	8

5.

	H	T	O
221	2	2	1
×			2
	4	4	2

6.

	H	T	O
312	3	1	2
×			2
	6	2	4

7.

	H	T	O
213	2	1	3
×			3
	6	3	9

8.

	H	T	O
210	2	1	0
×			4
	8	4	0

9.

	H	T	O
379	3	7	9
×			0
	0	0	0

10.

	H	T	O
303	3	0	3
×			3
	9	0	9

11.

	H	T	O
220	2	2	0
×			4
	8	8	0

12.

	H	T	O
401	4	0	1
×			2
	8	0	2

MULTIPLICATION OF A 2-DIGIT NUMBER BY A 1-DIGIT NUMBER (WITH CARRYING)

Let us multiply 36 by 4.

3-Step Method

	H	T	O
36	3	6	
×			4
	2	4	
+	1	2	0
	1	4	4

Step 1: Multiply 4 by 6.

Step 2: Multiply 4 by 3 tens or 30.

Step 3: Add the partial products.
24 + 120



Short Method

	H	T	O
		2	
		3	6
			4
×	1	4	4

Step 1: 4×6 ones = 24 ones = 2 tens 4 ones
Write 4 in the ones place and carry 2 to the tens place.

Step 2: 4×3 tens = 12 tens
12 tens + 2 tens (carried over) = 14 tens = 1 hundred 4 tens
Write 4 in the tens place and 1 in the hundreds place.

So, $36 \times 4 = 144$.

Exercise 5C

Use the short method to find the product.

1.

	H	T	O
		2	7
		6	
			4
×	2	6	8

2.

	H	T	O
		7	9
		5	
			8
×	4	7	2

3.

	H	T	O
		2	
		3	4
			5
×	1	7	0

4.

	H	T	O
		4	
		5	8
			5
×	2	9	0

5.

	H	T	O
		5	
		1	8
			7
×	1	2	6

6.

	H	T	O
		2	
		4	3
			8
×	3	4	4

7.

	H	T	O
		4	
		6	5
			9
×	5	8	5

8.

	H	T	O
		3	
		6	4
			8
×	5	1	2

9.

	H	T	O
		2	
		3	5
			5
×	1	7	5

10.

	H	T	O
		1	
		9	5
			3
×	2	8	5

11.

	H	T	O
		4	
		2	8
			6
×	1	6	8

12.

	H	T	O
		2	
		7	5
			4
×	3	0	0

MULTIPLICATION OF A 3-DIGIT NUMBER BY A 1-DIGIT NUMBER (WITH CARRYING)

Let us multiply 219 by 3.

4-Step Method

	H	T	O
×	2	1	9
			3
		2	7
		3	0
+	6	0	0
	6	5	7

Step 1: $3 \times 9 = 27$

Step 2: $3 \times 10 = 30$

Step 3: $3 \times 200 = 600$

Step 4: $27 + 30 + 600 = 657$



Short Method

	H	T	O
×	2	1	9
			3
	6	5	7

Carry

Step 1: Multiply the ones.

3×9 ones = 27 ones = 2 tens 7 ones
Write 7 in the ones place and carry 2 to the tens place.

Step 2: Multiply the tens.

3×1 ten = 3 tens

3 tens + 2 tens (carried over) = 5 tens
Write 5 in the tens place.

Step 3: Multiply the hundreds.

3×2 hundreds = 6 hundreds
Write 6 in the hundreds place.

So, $219 \times 3 = 657$.

Exercise 5D



Multiply:

1.

H	T	O
1	3	0
1	2	8
		4
5	1	2

2.

H	T	O
2	1	5
		3
6	4	5

3.

H	T	O
1	4	0
		5
5	9	0

4.

H	T	O
1	4	5
		2
2	9	0

5.

H	T	O
4	1	2
		5
9	6	0

6.

H	T	O
2	3	8
		4
9	5	2

7.

H	T	O
2	0	8
		4
8	3	2

8.

H	T	O
4	3	5
		2
8	7	0

9.

H	T	O
2	3	9
		4
8	7	6

10.

H	T	O
1	6	9
		7
7	6	3

11.

H	T	O
4	2	6
		2
8	5	2

12.

H	T	O
3	2	7
		3
9	5	1

MULTIPLICATION BY 10, 20, 30, ..., 100

❖ When we multiply a number by 10, we just add a zero to the right of the number to get the product.

$4 \times 10 = 40$

$8 \times 10 = 80$

$25 \times 10 = 250$

❖ When we multiply a number by 100, we just add two zeros to the right of the number in the product.

$4 \times 100 = 400$

$8 \times 100 = 800$

$10 \times 100 = 1000$

Multiplication of a number with the multiples of 10, that is, 20, 30, ..., 90

$$\begin{aligned} 32 \times 20 &= 32 \times (2 \times 10) \\ &= (32 \times 2) \times 10 \\ &= 64 \times 10 \\ &= \mathbf{640} \end{aligned}$$

Short Method

Multiply 32 by 2 and get 64.
Put 0 at the extreme right in the ones place.

So, $32 \times 20 = \mathbf{640}$.

	T	O
	3	2
×	2	
	6	4

Multiplication of a number with the multiples of 100, that is, 200, 300, ..., 900

$$\begin{aligned} 3 \times 200 &= 3 \times (2 \times 100) \\ &= (3 \times 2) \times 100 \\ &= 6 \times 100 \\ &= \mathbf{600} \end{aligned}$$

Short Method

Put zeros in the ones and tens places.

Multiply 2 by 3 and get 6.

So, $3 \times 200 = \mathbf{600}$.

	H	T	O
	2	0	0
×			3
	6	0	0

Exercise 5E

1. Write the product in the boxes.

(a) $15 \times 10 = \boxed{150}$
Put 0
Multiply 15 by 1.

(b) $6 \times 20 = \boxed{120}$

(c) $4 \times 60 = \boxed{240}$

(d) $5 \times 80 = \boxed{400}$

(e) $43 \times 20 = \boxed{860}$

(f) $10 \times 40 = \boxed{400}$

(g) $20 \times 9 = \boxed{180}$

(h) $31 \times 30 = \boxed{930}$

(i) $10 \times 80 = \boxed{800}$

2. Fill in the boxes.

(a) $4 \times 2 = \boxed{8}$

(b) $4 \times 20 = \boxed{80}$

(c) $4 \times 200 = \boxed{800}$

(d) $3 \times 3 = \boxed{9}$

(e) $3 \times 30 = \boxed{90}$

(f) $3 \times 300 = \boxed{900}$

(g) $7 \times 100 = \boxed{700}$
Multiply 7 by 1.

(h) $9 \times 80 = \boxed{720}$

(i) $5 \times 200 = \boxed{1000}$

WORD PROBLEMS

Example 1: Radhika's mother buys 4 bananas everyday for her family. How many bananas will she buy in 92 days?

Solution: To get the total number of bananas bought by Radhika's mother, we multiply 92 by 4.

So, Radhika's mother will buy **368** bananas in all.

H	T	O
	9	2
×		4
3	6	8



Example 2: A box of paper clips has 115 paper clips. How many paper clips altogether in 4 such boxes?

Solution: Number of paper clips in 1 box = 115

Number of boxes = 4

Total number of paper clips = 115×4

= **460**

H	T	O
	2	
1	1	5
×		4
4	6	0

Exercise 5F



Solve the following word problems.

1. There are 4 theatres in a city. Each theatre has 224 seats. How many seats are there in all?

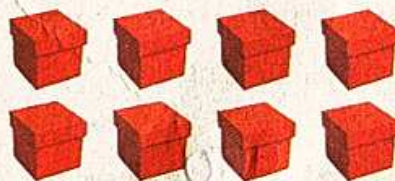
Ans: 896 seats.



H	T	O
	2	4
2	2	4
×		4
8	9	6

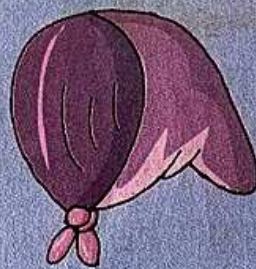
2. A small box contains 42 rulers. How many rulers do 8 such boxes contain?

Ans: 336 rulers.



H	T	O
	4	2
8		
×		8
3	3	6

3. Mrs Mishra knits 45 scarves in a month and distributes them in an old age home. If she knits the same number of scarves each month, how many scarves does she knit in 5 months? What moral value is shown by Mrs Mishra?



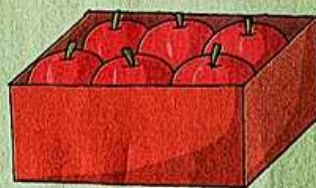
	H	T	O
	2	4	5
×			5
	2	2	5

[Value Based Question]

Help the needy person

Ans: 225 scarves.

4. A fruitseller sold 115 boxes of apples to a school. Each box had 6 apples. How many apples in all were sold to the school?



	H	T	O
	1	1	5
×			6
	6	9	0

Ans: 690 apples.

5. Aditi bought 95 clay diyas to decorate her home on Diwali. Each diya cost ₹8. How much did Aditi spend in all?

	H	T	O
		9	5
×			8
	7	6	0

Ans: 760 rupees.

6. How many days are there in 36 weeks?

	H	T	O
		3	6
×			7
	2	5	2

Ans: 252 days.

7. Rohit has nine 50-rupee notes and four 100-rupee notes. How much money in all does he have?



	H	T	O
		5	0
×			9
	4	5	0

	H	T	O
	1	0	0
×			4
	4	0	0

Ans: 950 rupees.

$$\begin{array}{r} 450 \\ 400 \\ \hline 950 \end{array}$$

Chapter Test



1. Multiply:

(a)

	H	T	O
		8	3
×			3
	2	4	9

(b)

	H	T	O
		9	6
×			7
	6	7	2

(c)

	H	T	O
		7	5
×			8
	6	0	0

(d)

	H	T	O
	1	2	6
×			3
	3	7	8

2. Fill in the blanks.

- (a) 3×7 tens = $3 \times 7 = 210$
- (b) 4×2 tens = $4 \times 20 = 80$ ones

MCQs

Tick (✓) the correct answer.

3. 5×8 tens = $5 \times 80 = 4$ hundreds
- (a) 40 hundreds (b) 40 ones
- (c) 4 tens (d) ✓ 4 hundreds
4. In a bookcase, there are 22 books in each of the 8 shelves. How many books are there in the bookcase? $22 \times 8 =$
- (a) 166 (b) 16 (c) ✓ 176 (d) 186
5. 13 groups from a school have gone for a picnic. Each group has 40 students. How many students in all have gone for the picnic? $40 \times 13 =$
- (a) 502 (b) 420 (c) ✓ 520 (d) 402
6. A newspaper boy delivers 114 newspapers everyday. How many newspapers does he deliver in 5 days? $114 \times 5 =$
- (a) 550 (b) 520 (c) 460 (d) ✓ 570
7. A grocer sells 105 bags of carrots. Each bag has 5 carrots. How many carrots in all does the grocer sell? $105 \times 5 = 525$
- (a) 120 (b) ✓ 505 (c) ✓ 525 (d) 500

Challenge!

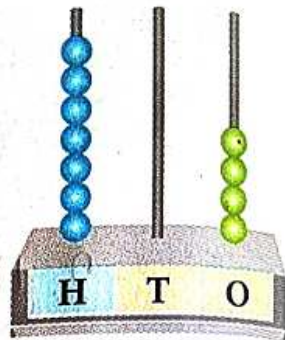
21st CS

It costs ₹12 to send a letter by post and ₹28 to send it by a courier. How much in all would it cost to send 6 letters by post and 4 letters by courier?

$$12 \times 6 + \frac{12 \times 6}{72} + \frac{28 \times 4}{112} = 2184$$

Model Test Paper - 1

(Based on Chapters 1 to 5)



1. Write the number shown on the abacus in

(a) Standard form: 704

(b) Expanded form: $700 + 00 + 4$

(c) Word form: Seven hundred four

2. (a) What is the sum of 286 and 387? 673

(b) What is the difference between 813 and 576? 237

3. Counting by threes, write three numbers starting from 214.
214, 217, 220

4. Anju needs to reserve 22 tables in a restaurant for a party. If each table can seat 8 persons, how many people will be attending the party? $22 \times 8 = 176$

5. Nimisha kept 5 crates with 20 eggs each one over the other. How many eggs are there in all? $20 \times 5 = 100$

MCQs

Tick (✓) the correct answer.

6. The number that comes after 3 hundreds 90 ones is

(a) 390

☒ (b) 391

(c) 392

(d) 389

7. _____ is 2 hundreds less than the sum of 149 and 528.

(a) 657

(b) 877

(c) 457

☒ (d) 477

8. A bicycle renting shop rents 33 bicycles every week. How many bicycles are rented in 7 weeks? 33×7

(a) 221 bicycles

(b) 212 bicycles

☒ (c) 231 bicycles

(d) 321 bicycles

9. What is the sum of the greatest and smallest numbers among the following?

628 + 253

628

352

253

278

(a) 818

(b) 981

☒ (c) 881

(d) 891

10. The difference between the place value of 3 and 7 in the number "three hundred seventy-five" is $300 - 70$

(a) 370

☒ (b) 230

(c) 300

(d) 70