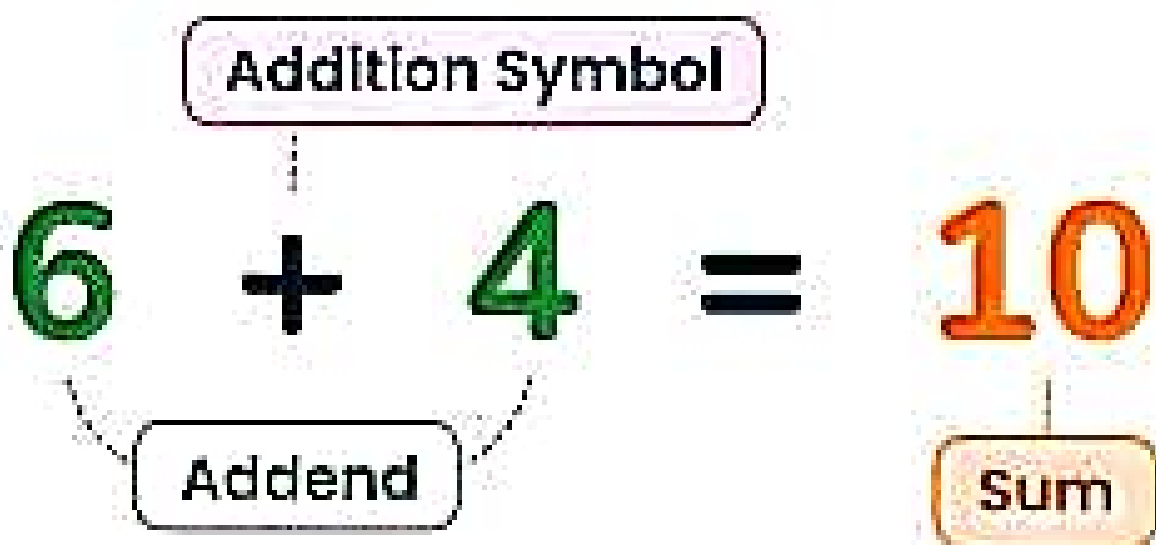


Addition



Each one of the numbers to be **added** is called an addend and the result of addition is called their **sum**.

Word Problems on Subtraction

Example 1: The sum of two numbers is 3148654. If one of the numbers is 1952789, find the other number.

Solution: The sum of two numbers = 3148654

One number = 1952789

The other number = $3148654 - 1952789$.

TL	L	TTh	Th	H	T	O
②	⑩	⑭	⑦	⑮	⑭	⑭ ← After borrowing
2	0	4	7	5	4	4
- 1	9	5	2	7	8	9
1	1	9	5	8	6	5

Hence, the other number is 1195865.

Subtraction

The diagram shows the subtraction equation $6 - 4 = 2$. The number 6 is brown, the minus sign is black, the number 4 is blue, the equals sign is black, and the number 2 is green. Below the equation, the word "minuend" is written in brown, "subtrahend" in blue, and "difference" in green. Arrows point from each label to its corresponding number: a brown arrow from "minuend" to 6, a blue arrow from "subtrahend" to 4, and a green arrow from "difference" to 2.

$$6 - 4 = 2$$

minuend subtrahend difference

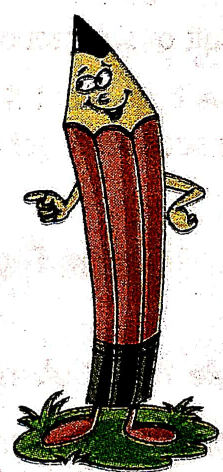
The large number from which we subtract the other number is called the **minuend** and the number which is subtracted is called the **subtrahend**.

Example 3: The difference between two numbers is 8974568. If the smaller number is 6468457, find the greater number.

Solution: Difference between the two numbers = 8974568.
 Smaller number = 6468457.
 \therefore Greater number = 8974568 + 6468457.

C	TL	L	TTh	Th	H	T	O
①	①	①	1	①	①	①	← Carry
	8	9	7	4	5	6	8
+	6	4	6	8	4	5	7
	1	5	4	4	3	0	2
							5

Hence, the greater number is 15443025.



Multiplication

Multiplication Symbol

7

x

3

=

21

Multiplicand

Multiplier

Product

The number to be multiplied is called **multiplicand** and the number by which we multiply is called **multiplier**.

Properties of Multiplication

I. Order Property of Multiplication

The product of two numbers does not change when the order of the numbers is changed.

Thus, $63 \times 27 = 27 \times 63$; $137 \times 125 = 125 \times 137$ etc.

II. Grouping Property of Multiplication

The product of three numbers does not change when the grouping of the numbers is changed.

Thus, $15 \times (16 \times 17) = (15 \times 16) \times 17$;

$125 \times (240 \times 265) = (125 \times 240) \times 265$ etc.

III. Distributive Property of Multiplication over Addition

We have: $23 \times (100 + 25) = (23 \times 100) + (23 \times 25)$;

$130 \times (145 + 245) = (130 \times 145) + (130 \times 245)$ etc.

IV. Multiplicative Property of 1

(Any number) $\times 1 =$ the number itself.

Thus, $536 \times 1 = 536$; $10641 \times 1 = 10641$ etc.

V. Multiplicative Property of 0

(Any number) $\times 0 = 0$.

Multiplication by 10, 100, 1000

Multiplication of a Number by 10

Rule: To multiply a given number by 10, insert one zero on the right of the given number.

Thus, $27 \times 10 = 270$, $147 \times 10 = 1470$, $2485 \times 10 = 24850$ etc.

Multiplication of a Number by 100

Rule: To multiply a given number by 100, insert two zeros on the right of the given number.

Thus, $76 \times 100 = 7600$, $382 \times 100 = 38200$, $2895 \times 100 = 289500$ etc.

Multiplication of a Number by 1000

Rule: To multiply a given number by 1000, insert three zeros on the right of the given number.

Thus, $87 \times 1000 = 87000$; $435 \times 1000 = 435000$; $4967 \times 1000 = 4967000$ etc.

Multiplication of a Number by a Multiple of 10, 100, 1000 etc.

The following examples will make the ideas clear.

Example 1: Find the products.

(a) 589×20

(b) 1356×90

Solution:

We have:

(a) 589×20

$= 589 \times 2 \times 10$

$= (589 \times 2) \times 10$

$= 1178 \times 10 = 11780.$

(b) 1356×90

$= 1356 \times 9 \times 10$

$= (1356 \times 9) \times 10$

$= 12204 \times 10 = 122040.$



Example 2: Find the products.

(a) 294×300

(b) 4567×500

Solution:

We have:

(a) 294×300

$= 294 \times 3 \times 100$

$= (294 \times 3) \times 100$

$= 882 \times 100 = 88200.$

(b) 4567×500

$= 4567 \times 5 \times 100$

$= (4567 \times 5) \times 100$

$= 22835 \times 100 = 2283500.$

Example 3: Find the products.

(a) 378×4000

(b) 2503×7000

Solution:

We have:

(a) 378×4000

$= 378 \times 4 \times 1000$

$= (378 \times 4) \times 1000$

$= 1512 \times 1000 = 1512000.$

(b) 2503×7000

$= 2503 \times 7 \times 1000$

$= (2503 \times 7) \times 1000$

$= 17521 \times 1000 = 17521000.$

Example 4: Using suitable grouping, find the following products.

(a) $4 \times 237 \times 25$

(b) $8 \times 1047 \times 125$

Solution:

We have:

(a) $4 \times 237 \times 25$

$= (4 \times 25) \times 237$

$= 100 \times 237 = 23700.$

(b) $8 \times 1047 \times 125$

$= (8 \times 125) \times 1047$

$= 1000 \times 1047 = 1047000.$



Exercise 10

1. Fill in the blanks.

- (a) $1485 \times \boxed{} = 2346 \times 1485$ (b) $2947 \times 4508 = 4508 \times \boxed{}$
 (c) $2772 \times \boxed{} = 2772$ (d) $4358 \times \boxed{} = 0$
 (e) $35 \times (100 + 37) = (35 \times 100) + (35 \times \boxed{})$
 (f) $146 \times (1000 + 48) = (146 \times \boxed{}) + (146 \times \boxed{})$
 (g) $375 \times (147 \times 903) = (375 \times 147) \times \boxed{}$
 (h) $(\boxed{}) \times (1030 \times 975) = (2460 \times 1030) \times 975$

2. Fill in the blanks.

- (a) $2718 \times 10 = \boxed{27180}$ (b) $16875 \times 10 = \boxed{168750}$ (c) $3875 \times 100 = \boxed{387500}$
 (d) $29272 \times 100 = \boxed{2927200}$ (e) $6087 \times 1000 = \boxed{6087000}$ (f) $47385 \times 1000 = \boxed{47385000}$

Find the following products.

3. $6540 \times 50 = 327000$ 4. $9784 \times 60 = 587040$ 5. $15235 \times 70 = 1066450$
 6. $7892 \times 300 = 2367600$ 7. $8986 \times 700 = 6290200$ 8. $26305 \times 800 = 21044000$
 9. $2981 \times 4000 = 11924000$ 10. $7897 \times 6000 = 47382000$ 11. $99999 \times 2000 = 199998000$

By using suitable grouping, find the following products.

12. $2 \times 467 \times 5 = 4670$ 13. $5 \times 1986 \times 20 = 198600$ 14. $4 \times 829 \times 25 = 82900$
 15. $4 \times 248 \times 125 = 124000$ 16. $8 \times 3472 \times 125 = 347200$ 17. $2 \times 5726 \times 500 = 572600$

Multiplication of Larger Numbers

We have already learnt the multiplication of a number by a 2-digit or 3-digit number. In the same way, we multiply with larger numbers.



Solved Examples

Example 1: Multiply 5347 by 486.

Solution: We have: $486 = 400 + 80 + 6$.

$$\begin{aligned} \therefore 5347 \times 486 &= 5347 \times (400 + 80 + 6) \\ &= 5347 \times 400 + 5347 \times 80 + 5347 \times 6 \\ &= 2138800 + 427760 + 32082 = 2598642. \end{aligned}$$



Shorter form:

			5	3	4	7
			x	4	8	6
		3	2	0	8	2
	4	2	7	7	6	0
2	1	3	8	8	0	0
2	5	9	8	6	4	2

$\leftarrow (5347 \times 6)$
 $\leftarrow (5347 \times 80)$
 $\leftarrow (5347 \times 400)$
 $\leftarrow (5347 \times 486)$

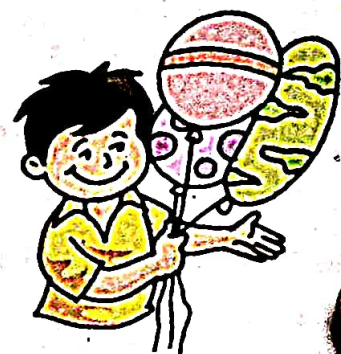


Example 2: Multiply 9896 by 2347.

Solution: We have:

				9	8	9	6	
				x	2	3	4	7
			6	9	2	7	2	
		3	9	5	8	4	0	
	2	9	6	8	8	0	0	
1	9	7	9	2	0	0	0	
2	3	2	2	5	9	1	2	

$\leftarrow (9896 \times 7)$
 $\leftarrow (9896 \times 40)$
 $\leftarrow (9896 \times 300)$
 $\leftarrow (9896 \times 2000)$
 $\leftarrow (9896 \times 2346)$



Exercise 11

Find the following products.

1.

6	8	5	4
	x	8	9

2.

2	6	8	5	7
		x	6	8

3.

9	6	7	5	
	x	9	2	5

4.

2	3	6	8	9
	x	1	3	7

5.

1	2	4	5	6
	x	7	8	4

6.

1	9	8	4	7
	x	3	5	4

7.

	2	4	6	7
x	1	3	5	9

8.

	4	8	7	3
x	1	7	0	8

9.

	3	9	4	3
x	2	3	5	6

10.

	9	3	5	6
x	2	4	3	1

11.

	3	2	6	5
x	2	7	8	4

12.

1	2	8	7	4
x	1	3	8	6

Multiply:

13. 10654 by 875

14. 14567 by 1065

15. 8985 by 1789

16. 10023 by 1034

17. 20185 by 1648

18. 15487 by 1526

Word Problems on Multiplication

Example 1: The cost of a steel almirah is ₹ 5975. What is the cost of 864 such almirahs?

Solution: Cost of 1 almirah = ₹ 5975.

Cost of 864 almirahs = ₹ (5975 × 864).

			5	9	7	5
			×	8	6	4
		2	3	9	0	0
	3	5	8	5	0	0
4	7	8	0	0	0	0
5	1	6	2	4	0	0



Hence, the cost of 864 almirahs = ₹ 5162400.

Example 2: 4912 screws can be packed in one carton. How many screws can be packed in 1475 such cartons?

Solution: Number of screws in 1 carton = 4912.

Number of screws in 1475 cartons = 4912 × 1475.

			4	9	1	2
		×	1	4	7	5
<hr/>						
		2	4	5	6	0
	3	4	3	8	4	0
1	9	6	4	8	0	0
4	9	1	2	0	0	0
<hr/>						
7	2	4	5	2	0	0



Hence, the number of screws to be packed in 1475 cartons is 7245200.



Exercise 12

1. The cost of a scooter is ₹ 36453. Find the cost of 270 scooters.
2. The cost of a bicycle is ₹ 2895. Find the cost of 1486 bicycles.
3. A truck can carry 6785 kg of goods. How much can 759 trucks carry?
4. There are 1483 bags of wheat in a godown. If each bag weighs 108 kg, find the total weight of these bags.
5. A cloth mill produces 3746 metres of cloth in a day. How much cloth will it produce in 286 days?
6. A box contains 2748 pencils. How many pencils are there in 1674 such boxes?
7. A bundle of rope measures 548 metres. How much rope will be there in 2367 such bundles?

