Chapter- 6
Multiplication

STUDY NOTES

LEARN ABOUT:

- ❖ **PROPERTIES OF MULTIPLICATION**
- ❖ **MULTIPLYING A NUMBER BY 10, 100, 1000 etc.**
- ❖ **MULTIPLYING LARGER NUMBERS BY A 2-DIGIT NUMBER**
- ❖ **MULTIPLYING BIGGER NUMBERS BY A 3-DIGIT NUMBER**
- ❖ **WORD PROBLEMS ON MULTIPLICATION**

- **PROPERTIES OF MULTIPLICATION-**

1. When a number is multiplied by 1, then the product is always the number itself.
   EXAMPLE-
   9,786 x 1 = 9,786
   67,546 x 1 = 67,546

2. When a number is multiplies by 0, then the product is always 0.
   EXAMPLE-
   867 x 0 = 0
   89,999 x 0 = 0

3. **COMMUTATIVE PROPERTY OF MULTIPLICATION-**
   When two numbers are multiplied, the product of these numbers will not change even when the order of the numbers is changed.
   EXAMPLE-
   3,113 x 26 = 80,938
   26 x 3,113 = 80,938

4. **ASSOCIATIVE PROPERTYOF MULTIPLICATION-**
   When two or more numbers are grouped and multiplied, the product does not change even if we change the groupings.

EXAMPLE-

(15 x 321) x 27 = 4,815 x 27

15 x (321 x 27) = 15 x 8,667

(15 x 321) x 27 = 15 x (321 x 27) = 1,30,005

5. **DISTRIBUTIVE PROPERTY OF MULTIPLICATION-**

When multiplying a sum of two or more numbers by a number, we can first add the numbers and then multiply or we can multiply each addend first with the number and then add the products. The answer remains the same.

EXAMPLE-

(15 + 11 + 3) x 100 = 29 x 100 = 2,900

(15 + 11 + 3) x 100

= (15 x 100) + (11 x 100) + (3 x 100)

= 1,500 + 1,100 + 300

= 2,900

- **MULTIPLYING A NUMBER BY 10, 100, 1000 etc.-**

This method explains the shortcuts for multiplying any number by 10, 100 or 1000.

1. If we multiply any number by 10, then add one zero at the right side of the number.

   EXAMPLE-

   251 x 10 = 2,510

   6,789 x 10 = 67,890

2. If we multiply any number by 100, then add two zeroes at the end of the number.

   EXAMPLE-

   364 x 100 = 36,400

   78,987 x 100 = 78,98,700

3. If we multiply any number by 1000, then add three zeroes at the end of the number.

   EXAMPLE-

   212 x 1000 = 2,12,000

   7,646 x 1000 = 76,46,000

- **MULTIPLYING LARGER NUMBERS BY A 2-DIGIT NUMBER-**

EXAMPLE-
Multiply 6,748 by 27.

SOLUTION-			6	7	4	8
		×			2	7
		①	①			
		4	7	2	3	6
+	1	3	4	9	6	
	1,	8	2,	1	9	6

STEP-1: Multiply 6,748 by 7 and write the product as shown.
STEP-2: Before multiplying with the tens digit of the multiplier, write 0 in the ones place as shown.
STEP-3: Multiply 6,748 by 2 and write the product as shown.
STEP-4: Add the products to get the final answer.

- **MULTIPLYING BIGGER NUMBERS BY A 3-DIGIT NUMBER-**

EXAMPLE-
Multiply 742 by 132

SOLUTION-			7	4	2
		×	1	3	2
		①			
		1	4	8	4
	2	2	2	6	0
+	7	4	2	0	0
	9	7,	9	4	4

STEP-1: Multiply 742 by 2 and write the product.
STEP-2: Put a zero at ones place and then multiply 742 by 3 as usual. Write the product.
STEP-3: Put two zeroes at the ones and tens place before multiplying 742 by 1. Write the product.
STEP-4: Add the three products and write the answer.

- **WORD PROBLEMS ON MULTIPLICATION-**

5 steps should be followed while solving the story sums.

1. Read the question and find out the known facts.

2. Find out the unknown facts (what do you need to know).

3. Find out which operation you will follow to solve the problem.

4. Solve the problem and write the answer in sentence.

5. Check the answer.

EXAMPLE-

The cost of a toaster is Rs.1,750. A shop keeper bought 50 toasters for selling. How much did he pay for 50 toasters?

SOLUTION-

Cost of one toaster = Rs.1,750
Cost of 50 toasters = Rs.1,750 x 50 = Rs.87,500
Hence, the cost of 50 toasters is Rs.87,500.

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