9.4 Simple Multiplication

Example 1 :

$$\begin{array}{r} 6 \\ \times\ 4 \\ \hline \boxed{24} \end{array}$$

6 times 4 equals 24.

Example 2 :

$$\begin{array}{r} 9 \\ \times\ 5 \\ \hline \boxed{45} \end{array}$$

9 times 5 equals 45.

Exercise

Multiply the following.

$\begin{array}{r} 2 \\ \times\ 2 \\ \hline 4 \end{array}$	$\begin{array}{r} 2 \\ \times\ 3 \\ \hline 6 \end{array}$	$\begin{array}{r} 4 \\ \times\ 2 \\ \hline 8 \end{array}$	$\begin{array}{r} 3 \\ \times\ 2 \\ \hline 6 \end{array}$	$\begin{array}{r} 6 \\ \times\ 2 \\ \hline 12 \end{array}$
$\begin{array}{r} 9 \\ \times\ 3 \\ \hline 27 \end{array}$	$\begin{array}{r} 8 \\ \times\ 4 \\ \hline 32 \end{array}$	$\begin{array}{r} 6 \\ \times\ 4 \\ \hline 24 \end{array}$	$\begin{array}{r} 9 \\ \times\ 2 \\ \hline 18 \end{array}$	$\begin{array}{r} 5 \\ \times\ 5 \\ \hline 25 \end{array}$
$\begin{array}{r} 4 \\ \times\ 3 \\ \hline 12 \end{array}$	$\begin{array}{r} 3 \\ \times\ 5 \\ \hline 15 \end{array}$	$\begin{array}{r} 2 \\ \times\ 4 \\ \hline 8 \end{array}$	$\begin{array}{r} 9 \\ \times\ 4 \\ \hline 36 \end{array}$	$\begin{array}{r} 8 \\ \times\ 5 \\ \hline 40 \end{array}$
$\begin{array}{r} 7 \\ \times\ 10 \\ \hline 70 \end{array}$	$\begin{array}{r} 6 \\ \times\ 5 \\ \hline 30 \end{array}$	$\begin{array}{r} 7 \\ \times\ 5 \\ \hline 35 \end{array}$	$\begin{array}{r} 8 \\ \times\ 3 \\ \hline 24 \end{array}$	$\begin{array}{r} 3 \\ \times\ 3 \\ \hline 9 \end{array}$
$\begin{array}{r} 5 \\ \times\ 7 \\ \hline 35 \end{array}$	$\begin{array}{r} 4 \\ \times\ 5 \\ \hline 20 \end{array}$	$\begin{array}{r} 9 \\ \times\ 4 \\ \hline 36 \end{array}$	$\begin{array}{r} 8 \\ \times\ 3 \\ \hline 24 \end{array}$	$\begin{array}{r} 5 \\ \times\ 4 \\ \hline 20 \end{array}$

9.5 Multiplication : A 2-digit Number by a 1-digit Number

Example : Multiply 22 by 3.

```
  T   O
  2   2
×     3
─────────
  6   6
```

Method :

Step 1 : Start with the ones.
Multiply the ones by 3.
2 ones × 3 ones = 6 ones.
Write 6 under ones column.

Step 2 : Multiply the tens by 3.
2 tens × 3 ones = 6 tens.
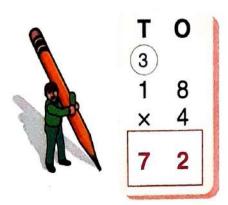Write 6 under tens column.

Exercise

Multiply the following.

```
  T   O          T   O          T   O          T   O          T   O
  1   1          1   2          1   3          1   4          4   4
×     2        ×     2        ×     2        ×     2        ×     2
─────────      ─────────      ─────────      ─────────      ─────────
  2   2          2   4          2   6          2   8          8   8
```

```
  T   O          T   O          T   O          T   O          T   O
  3   3          3   2          2   2          1   1          2   3
×     2        ×     3        ×     3        ×     3        ×     3
─────────      ─────────      ─────────      ─────────      ─────────
  6   6          9   6          6   6          3   3          6   9
```

```
  T   O          T   O          T   O          T   O          T   O
  2   4          3   3          3   2          3   1          4   3
×     2        ×     3        ×     4        ×     2        ×     2
─────────      ─────────      ─────────      ─────────      ─────────
  4   8          9   9          1 2 8          6   2          8   6
```

```
  T   O          T   O          T   O          T   O          T   O
  1   3          4   1          3   1          5   2          4   1
×     3        ×     2        ×     3        ×     1        ×     2
─────────      ─────────      ─────────      ─────────      ─────────
  3   9          8   2          9   3          5   2          8   2
```

9.6 Multiplication : A 2-digit Number by a 1-digit Number (with carry over)

Example : Multiply 18 by 4.

```
  T  O
 (3)
  1  8
 ×  4
 ─────
  7  2
```

Method :

Step 1 : Multiply the ones by 4.
8 ones × 4 ones = 32 = 3 tens and 2 ones.
Write 2 under ones column and carry over
3 tens to the tens column.

Step 2 : Multiply the tens by 4.
1 ten × 4 = 4 tens. Add the tens
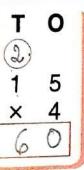4 tens + 3 tens (carry over) = 7 tens.
Write 7 under tens column.   **Ans.** 72

Exercise

Multiply the following.

```
   T  O          T  O          T  O          T  O          T  O
  (1)            (1)            (3)            (1)            (3)
   2  6           2  8           2  9           3  7           4  6
  ×  2           ×  2           ×  4           ×  2           ×  5
  ─────          ─────          ─────          ─────          ─────
   5  2           5  6          11  6           7  4          23  0
```

```
   T  O          T  O          T  O          T  O          T  O
  (2)            (2)            (2)            (4)            (3)
   1  8           1  7           2  8           2  9           1  9
  ×  3           ×  4           ×  3           ×  5           ×  4
  ─────          ─────          ─────          ─────          ─────
   5  4           6  8           8  4          14  5           7  6
```

```
   T  O          T  O          T  O          T  O          T  O
  (2)            (2)            (2)            (1)            (1)
   1  5           1  9           3  6           3  8           4  3
  ×  4           ×  3           ×  4           ×  2           ×  4
  ─────          ─────          ─────          ─────          ─────
   6  0           5  7          14  4           7  6          17  2
```

9.7 Multiplication : A 3-digit Number by a 1-digit Number

Example : Multiply 234 by 2.

```
H  T  O
2  3  4
×     2
―――――――
4  6  8
```

Method :

Step 1 : Multiply the ones by 2. $4 \times 2 = 8$

Step 2 : Multiply the tens by 2. $3 \times 2 = 6$

Step 3 : Multiply the hundreds by 2. $2 \times 2 = 4$

   Write the respective numbers in their respective places.   **Ans. 468**

Exercise

Multiply the following.

```
H  T  O          H  T  O          H  T  O          H  T  O
3  2  4          3  2  2          4  1  3          5  1  3
×     2          ×     2          ×     2          ×     3
―――――――          ―――――――          ―――――――          ―――――――
6  4  8          6  4  4          8  2  6          15 3  9
```

```
H  T  O          H  T  O          H  T  O          H  T  O
2  3  3          2  1  2          1  4  4          1  1  1
×     3          ×     4          ×     2          ×     5
―――――――          ―――――――          ―――――――          ―――――――
6  9  9          8  4  8          2  8  8          5  5  5
```

```
H  T  O          H  T  O          H  T  O          H  T  O
1  0  1          2  2  1          1  3  3          1  3  2
×     5          ×     3          ×     3          ×     3
―――――――          ―――――――          ―――――――          ―――――――
5  0  5          6  6  3          3  9  9          3  9  6
```

```
H  T  O          H  T  O          H  T  O          H  T  O
1  3  1          3  2  1          2  0  3          1  0  2
×     3          ×     3          ×     2          ×     4
―――――――          ―――――――          ―――――――          ―――――――
3  9  3          9  6  3          4  0  6          4  0  8
```

9.8 Multiply Orally and Write the Answer

1. Four multiplied by four

$4 \times 4 = 16$

2. 12 times 5 equals

$12 \times 5 = 60$

3. Two sevens are

$2 \times 7 = 14$

4. One room has <u>five</u> fans in it. How many fans are there in <u>four</u> rooms ?

$5 \times 4 = 20$

5. <u>Seven</u> boys are standing in a row. Each boy is holding <u>two</u> flags in his hands. How many flags are there in all ?

$7 \times 2 = 14$

6. There are <u>four</u> plates on a dining table. Each plate is having <u>ten</u> cupcakes in it. How many cupcakes are there in all ?

$4 \times 10 = 40$

7. A shirt has <u>seven</u> buttons. How many buttons do we need for <u>four</u> such shirts ?

$7 \times 4 = 28$

8. One notebook costs Rs <u>25</u>. What will be the cost of <u>three</u> such notebooks ?

$25 \times 3 = 75$

9. A jug can hold <u>three</u> litres of water. How much water can <u>eight</u> such jugs hold ?

$3 \times 8 = 24$

10. There were <u>two</u> bookshelves with <u>45</u> books each. How many books are there in all ?

$45 \times 2 = 90$