

Class - IX and X  
Chapter - 1  
"Vedic mathematics"

(A) Sutra Eka nyunena puvena :-

↓  
"By this method to solve multiplication"

↓  
In this method second ~~digit~~ number always  
digit of 9.

for ex →  $23 \times \boxed{9}$   
 $243 \times \boxed{999}$

Formula :-  $A \times B$   
↓  
 $A-1 \mid B-(A-1)$

for example →  $23 \times 99$

↓

$$23-1 \mid 99-(23-1)$$

$$22 \mid 99-22$$

$$22 \mid 77 \Rightarrow 2277 \text{ Ans.}$$

second ex →

$$23 \times 9$$

↓

$$23-1 \mid 9 - (23-1)$$

$$22 \mid 9 - 22$$

↳ Here, is not subtract.

↓ then, Remove the place (khadi pie)

$$\Rightarrow 229 - 22$$

$$\Rightarrow 207 \text{ Ans}$$

Third ex:

$$\Rightarrow 23 \times 999$$

$$\Rightarrow 23-1 \mid 999 - (23-1)$$

$$\Rightarrow 22 \mid 999 - 22$$

$$\Rightarrow 22 \mid 977$$

$$\Rightarrow 22977 \text{ Ans}$$

Solve the following question.

(a)  $43 \times 99$

(b)  $576 \times 999$

(c)  $4602 \times 999$

(d)  $47 \times 9$

(e)  $53 \times 99$

(f)  $23 \times 99$

(g)  $456 \times 99$

(h)  $46 \times 999$

## (ii) Multiplication :

By Sutra Eka nyunena Purvena multiplication of two numbers can be easily performed if one of these numbers consists of digit nine only. For convenience the number having every digit 9 will be termed as multiplier and the other number as multiplicand.

### Method :

There are two sides of the product L.H.S. = multiplicand - 1

R.H.S. = multiplier - L.H.S.

Hence Multiplier  $\times$  Multiplicand = Multiplicand - 1 / Multiplier - L.H.S.

Three situations arises in this multiplication :

- (1) No. of digits of multiplier = No. of digits of multiplicand
- (2) No. of digit of multiplier > No. of digits of multiplicand
- (3) No. of digit of multiplier < No. of digits of multiplicand

### I Situation :

**(No. of digits of multiplier = No. of digits of multiplicand)**

Let us see the following examples :

1.  $8 \times 9$

L.H.S. =  $8 - 1 = 7$

R.H.S. =  $9 - 7 = 2$

$\therefore 8 \times 9 = 8 - 1 / 9 - 7 = 72$

2.  $8567 \times 9999$

=  $8567 - 1 / 9999 - 8566$

= 85661433

### II Situation :

**(No. of digits of multiplier > No. of digits of multiplicand)**

Let us see the following examples :

3.  $68 \times 999$

=  $068 \times 999$

=  $067 / 999 - 067$

= 67932

4.  $4523 \times 999999$

=  $004523 \times 999999$

=  $004522 / 9995477$

= 4522995477

- Note:**
- (1) Greater the no. of digits of multiplier so many 9 digits appear in the middle of the answer e.g. see question no. 3 and 4.
  - (2) Sum of respective digits of L.H.S. and R.H.S. of the product will always be equal to 9, i.e. first digit of LHS + first digit of RHS = 9.



### III Situation :

**(No. of digits of multiplier < No. of digits of multiplicand)**

The method is explained by the following examples:

5.  $43 \times 9$

$$= 42/9 - 42$$

$$= 429 - 42 = 387$$

6.  $512 \times 99$

$$= 511/99 - 511$$

$$= 51199 - 511 = 50688$$

$$\begin{array}{r} 2. \quad 146 \\ - 389 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 4022 \\ - 3543 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 6007 \\ - 1852 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 8317 \\ - 6454 \\ \hline \\ \hline \end{array}$$

By Sutra Ekadhikena Purvena multiply the following.

To Solve [9]

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$$9. \quad 42 \times 48$$

$$10. \quad 103 \times 107$$

$$11. \quad 294 \times 206$$

$$12. \quad 413 \times 487$$

Multiply with the help of Sutra Ekanyunena Purvena

$$13. \quad 54 \times 99$$

$$14. \quad 214 \times 999$$

$$15. \quad 47 \times 999$$

$$16. \quad 342 \times 99999$$

$$17. \quad 73 \times 9$$

$$18. \quad 467 \times 99$$

By Vedic method multiply the following:

$$19. \quad 15\frac{5}{7} \times 15\frac{2}{7}$$

$$20. \quad 24\frac{10}{13} \times 24\frac{3}{13}$$

$$21. \quad 4.5 \times 4.5$$

$$22. \quad 9.85 \times 9.15$$