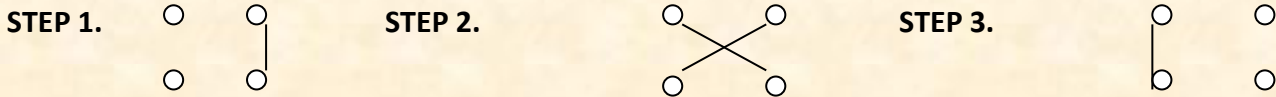


VERTICAL AND CROSSWISE METHOD OF MULTIPLICATION.

IT IS A SIMPLE METHOD OF MULTIPLICATION WHICH IS NOT ONLY EASY TO REMEMBER BUT ALSO SAVES A LOT OF TIME. (NUMBERS CAN BE MULTIPLIED IN ONE LINE USING THE FOLLOWING PATTERN.)

A. MULTIPLICATION OF 2 DIGITS NUMBER:

THE FOLLOWING PATTERN (FROM RIGHT TO LEFT) WILL HELP IN MULTIPLYING 2 DIGITS NUMBER.



FOR EXAMPLE: 53 X 47

$$\begin{array}{r} 5 \quad 3 \\ 4 \quad 7 \end{array} |$$

$$7 \times 3 = 21$$

$$\begin{array}{r} 5 \quad 3 \\ 4 \quad 7 \end{array}$$

$$7 \times 5 + 4 \times 3 = 47 + 2 \text{ (CARRY OVER)}$$

$$\begin{array}{r} 5 \quad 3 \\ 4 \quad 7 \end{array} |$$

$$5 \times 4 = 20 + 4 \text{ (CARRY OVER)} = 24$$

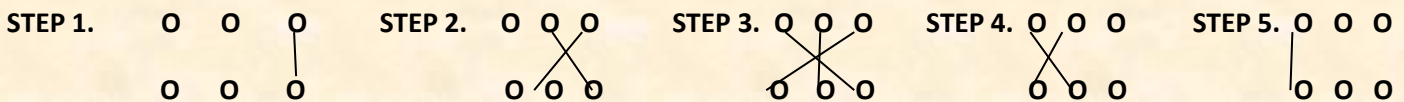
WRITE **1** AND CARRY FORWARD 2 TO NEXT STEP.

WRITE **9** AND CARRY FORWARD 4 TO NEXT STEP.

FINAL ANSWER: **2491.**

B. MULTIPLICATION OF 3 DIGITS NUMBER:

THE FOLLOWING PATTERN (FROM RIGHT TO LEFT) WILL HELP IN MULTIPLYING THREE DIGITS NUMBER.



FOR EXAMPLE: 543 X 212

$$\begin{array}{r} 5 \quad 4 \quad 3 \\ 2 \quad 1 \quad 2 \end{array} |$$

$$\begin{array}{r} 5 \quad 4 \quad 3 \\ 2 \quad 1 \quad 2 \end{array}$$

$$\begin{array}{r} 5 \quad 4 \quad 3 \\ 2 \quad 1 \quad 2 \end{array}$$

$$\begin{array}{r} 5 \quad 4 \quad 3 \\ 2 \quad 1 \quad 2 \end{array}$$

$$\begin{array}{r} 5 \quad 4 \quad 3 \\ 2 \quad 1 \quad 2 \end{array} |$$

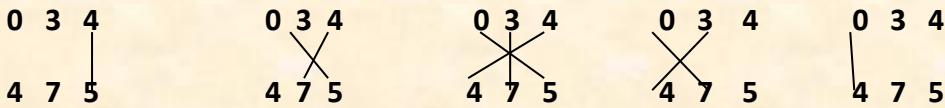
- $3 \times 2 = 6$
- $4 \times 2 + 3 \times 1 = 11$ (WRITE 1 AND CARRY 1 TO NEXT STEP)
- $5 \times 2 + 3 \times 2 + 4 \times 1 = 20 + 1$ (CARRY OVER) GIVES **21** (WRITE 1 AND CARRY 2 TO NEXT STEP)
- $5 \times 1 + 4 \times 2 = 13 + 2$ (CARRY OVER) GIVES **15** (WITE 5 AND CARRY 1 TO NEXT STEP)
- $5 \times 2 = 10 + 1$ (CARRY OVER) GIVES **11**

FINAL ANSWER : **115116.**

C. MULTIPLICATION OF 2 DIGITS NUMBER BY A 3 DIGITS NUMBER:

ADD A ZERO IN THE BEGINNING OF 2 DIGITS NUMBER TO EQUALISE THE NUMBER OF DIGITS AND THEN PROCEED AS MULTIPLICATION OF TWO 3 DIGITS NUMBER. (AS SHOWN ABOVE IN 'B')

FOR EXAMPLE: 34 X 475

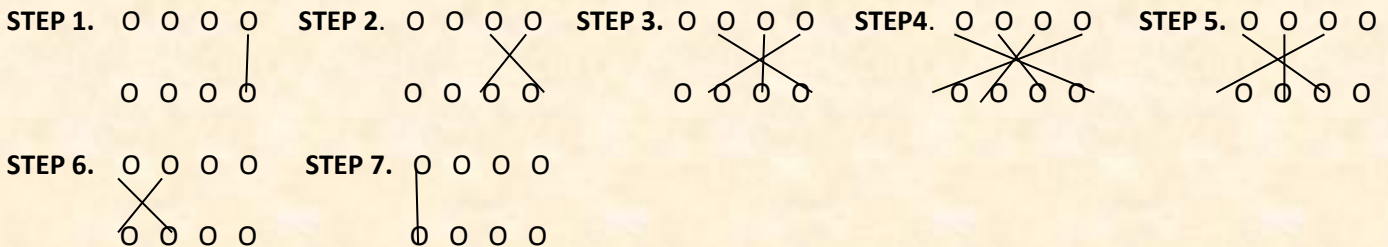


FINAL ANSWER : 16150

D. MULTIPLICATION OF 4 DIGITS NUMBERS:

TO MULTIPLY A 4 DIGITS NUMBER BY A 4 DIGIT NUMBER, WE NEED 7 STEPS.

PATTERN:



FOR EXAMPLE : 4345 X 6072.

$$\begin{array}{r} 4345 \\ \times 6072 \\ \hline \end{array}$$

FINAL ANSWER : 26382840.

(NOTE: AT EACH STEP OF THE ABOVE EXAMPLES UNIT OF THE RESULT OF THAT STEP WILL BE THE DIGIT OF THE STEP AND ITS REMAINING PART IS THE CARRY FORWARD AND WILL BE ADDED TO THE NEXT STEP ON ITS LEFT.)

THE SAME VERTICAL AND CROSSWISE METHOD CAN BE USED FOR ALGEBRIC MULTIPLICATION'S.

FOR EXAMPLE : (2X + 5)(3X + 1)

$$2X + 5$$

$$3X + 1$$

USING THE PATTERN OF MULTIPLICATION OF 2 DIGIT NUMBER, WE GET:

FINAL ANSWER : 6X² + 17X + 5.

I BELIEVE, THAT THE STUDENTS HAVE GRASPED THE BEAUTY OF THIS METHOD AND UNDERSTOOD THE SIMPLE STEPS BEHIND THIS METHOD OF MULTIPLICATION. AFTER PRACTISING THIS METHOD ONE CAN FIND THE ANSWERS IN ONE LINE.

BY HUSAIN SHOPUR WALA
(ACCOUNTS AND MATHS TEACHER)