

Math Tricks All - HW

I. Multiple of any two digit number with 11:-

ex. $18 \times 11 =$

ex. $49 \times 11 =$

ex. $72 \times 11 =$

ex. $96 \times 11 =$

ex. $85 \times 11 =$

ex. $67 \times 11 =$

II. Square of any number ending with 5:-

ex. $(55)^2 =$

ex. $(75)^2 =$

ex. $(85)^2 =$

ex. $(125)^2 =$

ex. $(135)^2 =$

ex. $(255)^2 =$

III. Multiplication of 2 two digit numbers :-

$$\begin{array}{r} \text{ex.} \quad 41 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 35 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 35 \\ \times 14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 86 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 89 \\ \times 76 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 72 \\ \times 94 \\ \hline \end{array}$$

IV. Double - half method :-

$$\text{ex.} \quad 350 \times 16 =$$

$$\text{ex.} \quad 450 \times 18 =$$

$$\text{ex.} \quad 335 \times 12 =$$

$$\text{ex. } 650 \times 18 =$$

$$\text{ex. } 246 \times 5 =$$

$$\text{ex. } 468 \times 75 =$$

V. Square of any number near to 50 :- ⁽³⁵⁻⁶⁵⁾

$$\text{ex. } (58)^2 =$$

$$\text{ex. } (49)^2 =$$

$$\text{ex. } (64)^2 =$$

$$\text{ex. } (56)^2 =$$

$$\text{ex. } (41)^2 =$$

$$\text{ex. } (36)^2 =$$

VI. Multiplication of any number with 15:-

ex. $72 \times 15 =$

ex. $88 \times 15 =$

ex. $0.002468 \times 15 =$

ex. $48 \times 15 =$

ex. $24.42 \times 15 =$

ex. $3.2468 \times 15 =$

VII. Square of any two (or) three digit numbers :-

$$\text{ex. } (42)^2 =$$

$$\text{ex. } (29)^2 =$$

$$\text{ex. } (125)^2 =$$

$$\text{ex. } (84)^2 =$$

$$\text{ex. } (66)^2 =$$

$$\text{ex. } (136)^2 =$$

VIII. Multiplication of any two numbers near to 100:- (80-120)

ex.
$$\begin{array}{r} 104 \\ \times 106 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 95 \\ \times 98 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 105 \\ \times 89 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 106 \\ \times 111 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 82 \\ \times 96 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 114 \\ \times 82 \\ \hline \end{array}$$

IX. Square root of a number which is a perfect square :-

$$\text{ex. } \sqrt{2916} =$$

$$\text{ex. } \sqrt{22201} =$$

$$\text{ex. } \sqrt{77284} =$$

$$\text{ex. } \sqrt{18225} =$$

$$\text{ex. } \sqrt{6241} =$$

$$\text{ex. } \sqrt{112896} =$$

X. Square root of a number which is not a perfect square :- (approx)

$$\text{ex. } \sqrt{23} =$$

$$\sqrt{a \pm b} = \sqrt{a} \pm \frac{b}{2\sqrt{a}}$$

$$\text{ex. } \sqrt{70} =$$

$$\text{ex. } \sqrt{240} =$$

$$\text{ex. } \sqrt{45} =$$

$$\text{ex. } \sqrt{95} =$$

$$\text{ex. } \sqrt{150} =$$

XI. Cube root of a number which is a perfect cube :-

$$\text{ex. } \sqrt[3]{328509} =$$

$$\text{ex. } \sqrt[3]{474552} =$$

$$\text{ex. } \sqrt[3]{4251528} =$$

$$\text{ex. } \sqrt[3]{97336} =$$

$$\text{ex. } \sqrt[3]{614125} =$$

$$\text{ex. } \sqrt[3]{4826809} =$$

XII. Dividing of two number in which numerator is greater than the denominator and denominator is 99:-

$$\text{ex. } \frac{472}{99} =$$

$$\text{ex. } \frac{3333}{99} =$$

$$\text{ex. } \frac{527}{99} =$$

$$\text{ex. } \frac{6352}{99} =$$

$$\text{ex. } \frac{494}{99} =$$

$$\text{ex. } \frac{3693}{99} =$$

XIII. Multiplication of any two numbers in which sum of their ^(units) ones place digits is 10 and remaining digits same:-

ex.
$$\begin{array}{r} 64 \\ \times 66 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 51 \\ \times 59 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 82 \\ \times 88 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 162 \\ \times 168 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 123 \\ \times 127 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 62 \\ \times 68 \\ \hline \end{array}$$

XIV. Multiplication of any two numbers in which ones place digits are same and sum of tens place digits is 10 :-

ex.
$$\begin{array}{r} 36 \\ \times 76 \\ \hline \hline \end{array}$$

ex.
$$\begin{array}{r} 13 \\ \times 93 \\ \hline \hline \end{array}$$

ex.
$$\begin{array}{r} 51 \\ \times 51 \\ \hline \hline \end{array}$$

ex.
$$\begin{array}{r} 49 \\ \times 69 \\ \hline \hline \end{array}$$

ex.
$$\begin{array}{r} 72 \\ \times 32 \\ \hline \hline \end{array}$$

ex.
$$\begin{array}{r} 24 \\ \times 84 \\ \hline \hline \end{array}$$

XV. Multiplication of any number with a two digit number starting with 1 (Right neighbour rule):-

ex.
$$\begin{array}{r} 211 \\ \times 12 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 135 \\ \times 13 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 684264 \\ \times 17 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 2468 \\ \times 15 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 2357 \\ \times 18 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 9238 \\ \times 16 \\ \hline \\ \hline \end{array}$$

XVI. Multiplication of any number with a two digit number ending with 1 (Left neighbour rule):-

ex.

$$\begin{array}{r} 642 \\ \times 31 \\ \hline \\ \hline \end{array}$$

ex.

$$\begin{array}{r} 1234 \\ \times 21 \\ \hline \\ \hline \end{array}$$

ex.

$$\begin{array}{r} 6795 \\ \times 41 \\ \hline \\ \hline \end{array}$$

ex.

$$\begin{array}{r} 321 \\ \times 51 \\ \hline \\ \hline \end{array}$$

ex.

$$\begin{array}{r} 6798 \\ \times 71 \\ \hline \\ \hline \end{array}$$

ex.

$$\begin{array}{r} 58967 \\ \times 61 \\ \hline \\ \hline \end{array}$$

XVII. Division of any two numbers in which numerator is less than the denominator and the denominator ends with 9:-

$$\text{ex. } \frac{41}{59} =$$

$$\text{ex. } \frac{57}{79} =$$

$$\text{ex. } \frac{149}{159} =$$

$$\text{ex. } \frac{19}{29} =$$

$$\text{ex. } \frac{85}{89} =$$

$$\text{ex. } \frac{123}{139} =$$

~~XVIII~~. Multiplication of any number by 11 :-

$$\text{ex. } 2233 \times 11 =$$

$$\text{ex. } 9789687 \times 11 =$$

$$\text{ex. } 113355 \times 11 =$$

$$\text{ex. } 654879 \times 11 =$$

$$\text{ex. } 789768 \times 11 =$$

$$\text{ex. } 3456789 \times 11 =$$

XIX. Multiplication of any 2 three digit no. :-

ex.
$$\begin{array}{r} 123 \\ \times 212 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 234 \\ \times 123 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 468 \\ \times 123 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 345 \\ \times 234 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 689 \\ \times 768 \\ \hline \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 789 \\ \times 678 \\ \hline \\ \hline \end{array}$$

XX. Series addition of first n natural numbers:-

$$* 1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$$

ex. $1 + 2 + 3 + \dots + 20 =$

ex. $1 + 2 + 3 + \dots + 100 =$

ex. $1 + 2 + 3 + \dots + 50 =$

ex. $1 + 2 + 3 + \dots + 150 =$

ex. $1 + 2 + 3 + \dots + 98 =$

ex. $1 + 2 + 3 + \dots + 199 =$

XVI. Series addition of Squares of first n natural numbers:-

$$* 1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + \dots + 20^2 =$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + \dots + 100^2 =$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + \dots + 50^2 =$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + 4^2 + \dots + 150^2 =$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + \dots + 98^2 =$$

$$\text{ex. } 1^2 + 2^2 + 3^2 + \dots + 199^2 =$$

XXII. Series addition of cubes of first n natural numbers :-

$$* \quad 1^3 + 2^3 + 3^3 + \dots + n^3 = \left[\frac{n(n+1)}{2} \right]^2$$

$$\text{ex.} \quad 1^3 + 2^3 + 3^3 + \dots + 20^3 =$$

$$\text{ex.} \quad 1^3 + 2^3 + 3^3 + \dots + 100^3 =$$

$$\text{ex.} \quad 1^3 + 2^3 + 3^3 + \dots + 50^3 =$$

$$\text{ex. } 1^3 + 2^3 + 3^3 + \dots + 150^3 =$$

$$\text{ex. } 1^3 + 2^3 + 3^3 + \dots + 98^3 =$$

$$\text{ex. } 1^3 + 2^3 + 3^3 + \dots + 199^3 =$$

XXIII. Multiplication of a number with an equal number of 9:-

ex.
$$\begin{array}{r} 856 \\ \times 999 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 8974 \\ \times 9999 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 465879 \\ \times 9999999 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 321 \\ \times 999 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 75938 \\ \times 999999 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 468 \\ \times 999 \\ \hline \end{array}$$

XXIV. Multiplication of a number with a higher number of 9's :-

$$\begin{array}{r} \text{ex.} \quad 54 \\ \times 999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 76 \\ \times 9999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 678 \\ \times 9999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 135 \\ \times 9999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 275 \\ \times 9999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 963 \\ \times 999999 \\ \hline \end{array}$$

~~XXVI~~. Multiplication of a number with a lower number of 9's :-

$$\text{ex. } 684 \times 99 =$$

$$\text{ex. } 9756 \times 999 =$$

$$\text{ex. } 325 \times 9 =$$

$$\text{ex. } 479 \times 99 =$$

$$\text{ex. } 5787 \times 999 =$$

$$\text{ex. } 86421 \times 999 =$$

XXVI. Multiplication of any number with 111 :-

$$\text{ex. } 246 \times 111 =$$

$$\text{ex. } 1234 \times 111$$

$$\text{ex. } 11111 \times 111 =$$

$$\text{ex. } 9038 \times 111 =$$

$$\text{ex. } 803205 \times III =$$

$$\text{ex. } 9034206 \times III =$$

~~XXVII~~. Multiplication of any number with III:-

$$\text{ex. } 13246 \times IIII =$$

$$\text{ex. } 54321 \times IIII =$$

$$\text{ex. } 17659 \times 1111 =$$

$$\text{ex. } 224466 \times 1111 =$$

$$\text{ex. } 97531 \times 1111 =$$

$$\text{ex. } 897867 \times 1111 =$$

~~XXVIII.~~ Multiplication of any two numbers near to 1000 (800 - 1200) :-

$$\begin{array}{r} \text{ex.} \quad 975 \\ \times 985 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 1094 \\ \times 988 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 897 \\ \times 1024 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ex.} \quad 987 \\ \times 994 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 1235 \\ \times 1115 \\ \hline \end{array}$$

ex.
$$\begin{array}{r} 1120 \\ \times 1002 \\ \hline \end{array}$$

~~XXIX~~. Sum of Squares of two consecutive numbers :-

ex. $70^2 + 71^2 =$

ex. $82^2 + 83^2 =$

ex. $69^2 + 70^2 =$

ex. $120^2 + 121^2 =$

ex. $60^2 + 61^2 =$

ex. $89^2 + 90^2 =$

XXX. Special series addition :-

$$\text{ex. } 1 + 11 + 111 + 1111 + 11111 =$$

$$\text{ex. } 6 + 66 + 666 + 6666 + 66666 =$$

$$\text{ex. } 4 + 44 + 444 + 4444 =$$

$$\text{ex. } 8 + 88 + 888 + 8888 + 88888 =$$

$$\text{ex. } 3 + 33 + 333 + 3333 + 33333 =$$

$$\text{ex. } 9 + 99 + 999 + 9999 =$$