Examples of Square

SQUARE OF NUMBERS.

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Example:-1) $15^2 = 1 \times 2 \,/\, 5^2 = 225$,
Step:-1) One more than the previous number (1) of 5 is multiplied with it.
One more than 1 is 2 multiplied with it, $1 \times 2 = 2$,
Step:-2) Write 25, square of 5 against it to get the answer.
Example:-2) $25^2 = 2 \times 3 \,/\, 5^2 = 625$,
Step:-1) One more than the previous number (2) of 5 is multiplied with it.
One more than 2 is 3 multiplied with it, $2 \times 3 = 6$,
Step:-2) Write 25, square of 5 against it to get the answer.
Example:-3) $125^2 = 12 \times 13 \,/\, 5^2 = 15625$,
Step:-1) One more than the previous number (12) of 5 is multiplied with it.
One more than 12 is 13 multiplied with it, $12 \times 13 = 156$,
Step:-2) Write 25, square of 5 against it to get the answer.

SQUARE OF ANY TWO DIGITED NUMBER.
Using $(a+b)^2 = a^2 + 2ab + b^2$,
Example:-1) $32^2 = 3^2 \,/\, 2 \times 3 \times 2 \;/\; 2^2$ = 9 / 12 / 4 =1024, (Answer)
Step:-1) Write the numbers as shown above.
Step:-2) As the middle number 12 has two digits so, carry the ten's place digit 1 to add to 9 to get 10, so the answer is 1024,
Example:-2) $47^2 = 4^2 \,/\, 2 \times 4 \times 7 \;/\; 7^2$ = 16 / 56 / 49 =2209, (Answer)
Step:-1) Write the numbers as shown above.
Step:-2) As each number has two digits so, carry the ten's place digit of each number to add to the next number to get the answer is 2209,
Example:-3) $68^2 = 6^2 \,/\, 2 \times 6 \times 8 \;/\; 8^2$ = 36 / 96 / 64 =4624, (Answer)
Step:-1) Write the numbers as shown above.
Step:-2) As each number has two digits so, carry the ten's place digit of each number to add to the next number to get the answer is 4624,

SQUARE OF NUMBERS OF DIFFERENT BASE.
Example:-1) $203^2 = 2 \times (203+3) \,/\, 3^2 = 2 \times 206 \,/\; 9 = 41209$,

Step:-1) 203 is twice of the number 100, so the base number is 100 and theoretical base is 200, twice the base number.
Step:-2) 203 is 3 more than the T.B. so, increase further 3 and multiply by 2 to get 412,
Step:-3) Square of the excess number 3 is 9 and the base number is 100 so place a 0 before 9 and write against 412 to get the answer 41209,
Example:-2) 4013^2
$= 4 \times (4013 + 13) \,/\, 13^2 = 4 \times 4026 \,/\, 169 = 16104169,$
Step:-1) 4013 is four times the number 1000, so the base number is 1000 and theoretical base is 4000, four times the base number.
Step:-2) 4013 is 13 more than the T.B. so, increase further 13 and multiply by 4 to get 16104, $(4 \times (4013 + 13) = 4 \times 4026 = 16104)$
Step:-3) Square of the excess number 13 is 169 and the base number is 1000 so write 169 against 16104 to get the answer 16104169,

SQUARE ROOTS.

Example:-1) $\sqrt{256} = 16,$
Step:-1) Separate 256 in to two groups of two digited from the right side, left side single digit (2) can be considered as a group. 2, 56
Step:-2) As the left side digit 2 is lying between two perfect square numbers 1 and 4 so, considering the smaller number 1 as the left side digit of the answer.
Step:-3) The unit place digit 6 of the second group decides the unit place digit of the answer either 4 or 6,
Step:-4) Now comparing with square of 15 we have 256 >225, so, the answer is 16,
Example:-2) $\sqrt{2209} = 47,$
Step:-1) Separate 2209 in to two groups of two digited from the right side, left side group 22. 22, 09
Step:-2) As the left side group 22 is lying between two perfect square numbers 16 and 25 so, considering the smaller number 4 as the left side digit of the answer.
Step:-3) The unit place digit 9 of the second group decides the unit place digit of the answer either 3 or 7,

Step:-4) Now comparing with square of 45 we have 2209 >2025, so, the answer is 47,

Example:-3) $\sqrt{4096} = 64$,

Step:-1) Separate 4096 in to three groups of two digited from the right side, left side group 40. 40, 96

Step:-2) As the left side group 40 is lying between two perfect square numbers 36 and 49 so, considering the smaller number 6 as the left side digit of the answer.

Step:-3) The unit place digit 6 of the second group decides the unit place digit of the answer either 4 or 6,

Step:-4) Now comparing with square of 65 we have 4096 <4225, so, the answer is 64,