

Girls' High School and College, Prayagraj

Worksheet – 2

Session 2020-21

Class 8 (A,B,C,D,E)

Subject – Mathematics

Note- Parents are expected to ensure that the child takes reference from a book or the internet.

Chapter – Square and Square Roots

Topic – Properties of Squares of Numbers

1st Property – The ending digit(i.e. the digit at the unit's place) of the square of number is 0,1,4,5,6 or 9 for example

(i) $30^2=900$ (ii) $11^2=121$ (iii) $22^2=484$ (iv) $53^2=2809$ (v) $4^2=16$ (vi) $25^2=625$ (vii) $46^2=2116$

(viii) $37^2=1369$ (ix) $68^2=4624$ (x) $19^2=361$

2nd Property – A number having 2,3,7 or 8 at its unit's place is never a perfect square for example: None of the following numbers is a perfect square

(i) 12, 22, 32..... (ii) 13, 23, 33..... (iii) 17, 27, 37..... (iv) 18, 28, 38.....

3rd Property – If a number has 1 or 9 at its unit's place then square of this number always has 1 (one) at its unit place for example:

(i) $11^2=121$ (ii) $31^2=961$ (iii) $9^2=81$ (iv) $29^2=841$ and so on

4th Property – If the digit at the unit's place of a number is 4 or 6 then its square will always have 6 at its unit's place for example

(i) $4^2=16$ (ii) $24^2=576$ (iii) $6^2=36$ (iv) $36^2=1296$ and so on

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5th Property – If a number ends with n zeroes, its square ends with 2n zeroes.

(i) Square of 30=900 (ii) Square of 300=90000 and so on

6th Property – A perfect square number leaves remainder 0 or 1 on dividing it by 3

For example

(i) 9 is a perfect square number and on dividing it by 3, the remainder is 0.

(ii) 16 is a perfect square number and on dividing it by 3, the remainder is 1.

7th Property - For any natural number n

$$(n+1)^2 - n^2 = (n+1) + n$$

For example: (i) $8^2 - 7^2 = 8 + 7 = 15$ (ii) $15^2 - 14^2 = 15 + 14 = 29$

ANSWER THE FOLLOWING QUESTIONS

Q1. Seeing the value of the digit at unit's place state which of the following can be square of a number

(i) 2332 (ii) 5684 (iii) 3051 (iv) 6908 (v) 50699 (Hint: Refer to 1st and 2nd Property)

Q2. Squares of which of the following numbers will have 1 (one) at their unit's place

(i) 81 (ii) 47 (iii) 59 (iv) 133 (v) 521 (Hint: Refer to 3rd Property)

Q3. Which of the following numbers will have 6 at their unit's place?

(i) 53^2 (ii) 26^2 (iii) 59^2 (iv) 64^2 (v) 144^2 (Hint: Refer to 4th Property)

Q4. If a number ends with four zeroes how many zeroes will its square have?

(Hint: Refer to 5th Property)

Q5. Evaluate. (i) $37^2 - 36^2$ (ii) $85^2 - 84^2$ (Hint: Refer to 7th Property)

END

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