SHRI RAM CENTENNIAL SCHOOL
Worksheet

Subject: Maths **Number: [01/2627/8]**
Class: VIII **Date:**

Roll No. – **Student's Name:** **Section:**

1. $99^2 - 98^2$, using property of square numbers will be :
   (a) 192 (b) 197 (c) 1 (d) 99

2. What is digit at units place of cube of 3418?
   (a)8 (b) 1 (c) 2 (d) 7

3. Observing the pattern given below, find the missing number?
   $1^2 + 2^2 + 2^2 = 3^2$
   $2^2 + 3^2 + 6^2 = 7^2$
   $3^2 + 4^2 + 12^2 = 13^2$
   $4^2 + 5^2 + 20^2 = (\_?\_)^{2.}$
   (a)24 (b) 26 (c) 21 (d) 19

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Study both statements and choose the correct option.

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

4. **Assertion (A):** 365 is not a perfect square.

   Reason (R): If a natural number when divided by 3 leaves 2 as the remainder, it is not a perfect square.

5. **Assertion (A):** 12167 is cube of number having 3 at its unit's place .

   Reason (R): If number has 7 in its unit place, its cube will have 2 at the unit's place and vice versa.

6 Check if 15, 20, 25 forms a Pythagorean triplet.

7 Evaluate $3^3 + 4^3 + 5^3$ using Property 3 of cubes. Also write Property 3 of cubes.

8 Find the smallest perfect square number divisible by 18 and 36?

9 Evaluate $\sqrt{420} \times \sqrt{105}$?

10 How many consecutive odd numbers will be needed to obtain sum equal to 7^{3} ?

11 Find cube root of 658503 using units digit method.

12 The perimeter of one face of cube is 60 cm. Find its volume.

13 Find the square of 76 using column method. Confirm your result using conventional multiplication.

14 What least number should 21125 be multiplied so that they become perfect square. Also find the number whose squares the new numbers are.

15 What least number should 47916 be multiplied so that they become perfect cubes. Also find the number whose cubes the new numbers are.

16 Find the smallest and largest 4-digit perfect squares.

CHALLENGING SECTION

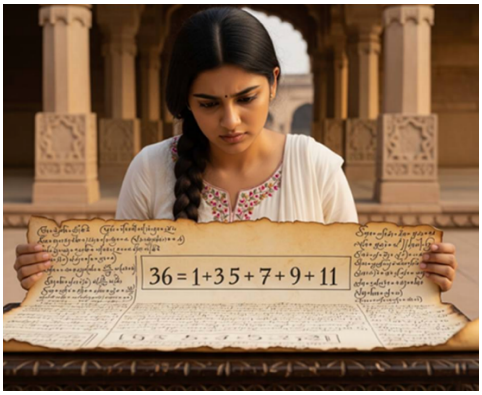
1. An army commander wants to marshal his troops in a square formation. He orders them to form a square of 45 rows and 45 columns. By doing so, he is left with 25 soldiers. How many soldiers has he in all?

2. A school has 1475 students. What is the minimum number of students that need to be added so that the total number of students can be arranged in a perfect square grid?

3. $26^3 - 25^3 = 1 +$ _____ × _____ × 3 = _____

CASE STUDY

1. Riya was reading about ancient Indian mathematicians. She discovered that square numbers can be expressed as the sum of consecutive odd numbers. She tried with 36: 36 = 1 + 3 + 5 + 7 + 9 + 11. She wondered if she could find other squares this way. She also noticed that the number of odd numbers added equals the square root of the number.



Answer the following:

a) Express 49 as the sum of consecutive odd numbers.
b) How many odd numbers are required to express 121 as a sum?
c) Find whether 50 can be expressed as the sum of consecutive odd numbers.
d) If 2025 is a perfect square, how many odd numbers will be required to express it?

2. During a math club discussion, Arjun told the famous story of Hardy and Ramanujan. Hardy thought 1729 was dull, but Ramanujan replied it was special since $1729 = 1^3 + 12^3 = 9^3 + 10^3$. This made Arjun curious about cubes and their properties. He started exploring other such numbers called “taxicab numbers.”

Answer the following:

a) Find the units digit of the cube of 25.
b) What is the smallest number by which 250 must be multiplied to make it a perfect cube?
c) What is the cube root of 2744?
d) Can a perfect cube end with the digits 00? Justify your answer.