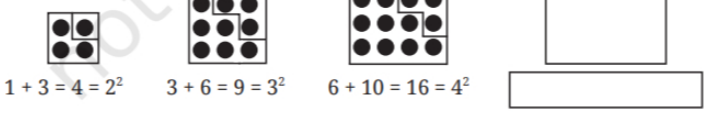
SQUARE AND CUBE ROOT

Class 08 - Maths (Ganita Prakash)

Time Allowed: 30 minutes **Maximum Marks: 51**

1. If a number ends in 0, 1, 4, 5, 6 or 9, is it always a square? **[1]**
2. Write 5 numbers such that you can determine by looking at their units digit that they are not squares. **[1]**
3. Which of the following numbers have the digit 6 in the units place? **[5]**
   i. 38^2
   ii. 34^2
   iii. 46^2
   iv. 56^2
   v. 74^2
   vi. 82^2
4. If a number contains 3 zeros at the end, how many zeros will its square have at the end? **[1]**
5. Can you see any relation between triangular numbers and square numbers? Extend the pattern shown and draw the next term. **[2]**



6. What is the square root of 64? **[2]**
7. Given a number, such as 576 or 327, how do we find out if it is a perfect square? If it is a perfect square, how can we find its square root? **[2]**
8. Which of the following numbers are not perfect squares? **[3]**
   i. 2032
   ii. 2048
   iii. 1027
   iv. 1089
9. Which one among 64^2, 108^2, 292^2, 36^2 has last digit 4? **[1]**
10. Given $125^2 = 15625$, what is the value of 126^2? **[2]**
    i. 15625 + 126
    ii. $15625 + 26^2$
    iii. 15625 + 253
    iv. 15625 + 251
    v. $15625 + 51^2$
11. Find the length of the side of a square whose area is 441 m^2. **[1]**

12. Find the smallest square number that is divisible by each of the following numbers: 4, 9, and 10. **[3]**

13. Find the smallest number by which 9408 must be multiplied so that the product is a perfect square. Find the square root of the product. **[2]**

14. How many numbers lie between the squares of the following numbers? **[2]**

    i. 16 and 17

    ii. 99 and 100

15. In the following pattern, fill in the missing numbers: **[2]**

    $1^2 + 2^2 + 2^2 = 3^2$

    $2^2 + 3^2 + 6^2 = 7^2$

    $3^2 + 4^2 + 12^2 = 13^2$

    $4^2 + 5^2 + 20^2 =$ (_____)^2

    $9^2 + 10^2 +$ (_____)^2 = (_____)^2

16. Can you tell what this sum is without doing the calculation? **[2]**

    91+93 +95 + 97 + 99 + 101 + 103 + 105 + 107 + 109.

17. Find the cube root of $\sqrt[3]{64}$ **[1]**

18. Find the cube root of $\sqrt[3]{512}$ **[1]**

19. Find the cube root of $\sqrt[3]{729}$ **[1]**

20. Find the cube roots of 27000 and 10648. **[2]**

21. What number will you multiply by 1323 to make it a cube number? **[1]**

22. State whether the given statement is True or False: **[1]**

    The cube of any odd number is even.

23. State whether the given statement is True or False: **[1]**

    There is no perfect cube that ends with 8.

24. State whether the given statement is True or False: **[1]**

    The cube of a 2-digit number may be a 3-digit number.

25. State whether the given statement is True or False: **[1]**

    The cube of a 2-digit number may have seven or more digits.

26. State whether the given statement is True or False: **[1]**

    Cube numbers have an odd number of factors.

27. Which of the following is the greatest? Explain your reasoning. **[3]**

    i. $67^3 - 66^3$

    ii. $43^3 - 42^3$

    iii. $67^2 - 66^2$

    iv. $43^2 - 42^2$

28. Look at the following numbers: 3 6 10 15 1 **[5]**

    They are arranged such that each pair of adjacent numbers adds up to a square.

    $3 + 6 = 9, 6 + 10 = 16, 10 + 15 = 25, 15 + 1 = 16.$

    Try arranging the numbers 1 to 17 (without repetition) in a row in a similar way — the sum of every adjacent pair of numbers should be a square. Can you arrange them in more than one way? If not, can you explain why?