DEVESH TEDIA CLASSES

Above muthoot finance bank, awadhpuri, bhopal

WORKSHEET - SQUARE AND SQUARE ROOT

Class 08 - Mathematics

Section A

1. Which one of the following will have even unit digit? **[1]**

   a) $(34)^2$ b) $(43)^2$

   c) $(63)^2$ d) $(37)^2$

2. During a mass drill exercise, 6250 students of different schools are arranged in rows such that the number of students in each row is equal to the number of rows. In doing so, the instructor finds out that 9 children are left out. Find the number of children in each row of the square. **[1]**

   a) 77 b) 70

   c) 97 d) 79

3. The value of $\sqrt{99} \times \sqrt{396}$ is: **[1]**

   a) 208 b) 300

   c) 254 d) 198

4. The square of which of the following numbers will be odd? **[1]**

   10, 100, 1000, 99

   a) 10 b) 100

   c) 99 d) 1000

5. Which of the following is a perfect square number? **[1]**

   A. 2401
   B. 2300
   C. 2200
   D. 2104

   a) A b) B

   c) C d) D

6. Which of the following would end with digit 6? **[1]**

   a) 444^2 b) 433^2

   c) 342^2 d) 457^2

7. Which of the following is a perfect square number? **[1]**

   A. 225
   B. 224
   C. 200
   D. 300

a) C b) A

c) D d) B

8. A group of students decided to collect as many paise from each member of the group as is the number of members. If the total collection amounts to Rs.22.09, the number of members in the group is: **[1]**

a) 47 b) 37

c) 107 d) 43

9. $\sqrt{\frac{0.289}{0.00121}}$ = ? **[1]**

a) $\frac{17}{110}$ b) $\frac{17}{11}$

c) $\frac{1.7}{11}$ d) $\frac{170}{11}$

10. The least 6 digit number which is perfect square is **[1]**

a) 100000 b) 100144

c) 100489 d) 100225

11. Find the perfect square number between 80 and 90. **[1]**

a) 87 b) 82

c) 85 d) 81

12. The least number to be subtracted from 24136 to make it a perfect square **[1]**

a) 115 b) 100

c) 111 d) 200

13. The area of a square field is $80\frac{244}{729}$ sq. m. The length of each side of the field, is _____. **[1]**

a) 12.26 m b) 13.54 m

c) 8.96 m d) 10.26 m

14. 7396 students are sitting in an auditorium in such a manner that there are as many students in a row as there are rows in the auditorium. How many rows are there in the auditorium? **[1]**

a) 86 b) 76

c) 80 d) 75

15. The least perfect square which is divisible by 2, 4 and 6 is: **[1]**

a) 36 b) 16

c) 64 d) 18

16. If $\sqrt{2^n}$ = 1024, then find the value of $3^{2\left(\frac{n}{4}-4\right)}$ **[1]**

a) 32 b) 9

c) 3 d) 20

17. Which of the following is a square of an even number? **[1]**

a) 441 b) 169

c) 144 d) 625

18. Without adding, find the sum. 1 + 3 + 5 + 7 + 9 **[1]**

a) 25 b) 9

c) 36 d) 16

19. The least square number exactly divisible by 4, 6, 10, 15 is **[1]**

a) 100 b) 25

c) 900 d) 400

20. The smallest natural number which when added to the difference of squares of 17 and 13 gives a perfect square is: **[1]**

a) 11 b) 5

c) 1 d) 24

21. If $\sqrt{2+\sqrt{x}}$ = 3, then x = _____. **[1]**

a) 49 b) 1

c) $\sqrt{7}$ d) 7

22. 196 is the square of **[1]**

a) 16 b) 11

c) 14 d) 12

23. The number of digits in the square root of 298116 is **[1]**

a) 6 b) 4

c) 3 d) 5

24. If a = 0.1039, then the value of 3a - $\sqrt{4a^2-4a+1}$ is **[1]**

a) 0.1039 b) 1.1039

c) 0.2078 d) 2.1039

25. If $\sqrt{1+\frac{27}{169}}$ = 1 + $\frac{x}{13}$, then x = _____ **[1]**

a) Cannot be determined b) 14

c) 1 d) 12

26. Find the perfect square numbers between 100 and 130. **[1]**

a) 118 b) 125

c) 116 d) 121

27. The greatest six digit number which is a perfect square is **[1]**

a) 998006 b) 998001

c) 998049 d) 998004

28. The smallest number by which 136 must be multiplied so that it becomes a perfect square is **[1]**

a) 19 b) 34

c) 17 d) 2

29. Which one of the following is a perfect square number? **[1]**

a) 220 b) 125

c) 144 d) 343

30. Which of the following is a perfect square number? **[1]**

A. 1225
B. 1200
C. 1249
D. 1264

a) D b) A

c) B d) C

31. **Assertion (A):** 4 is the only one-unit digit number that is a perfect square number. **[1]**
Reasons (R): A perfect square is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer.

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.

32. **Assertion (A):** $7^2 = 23 + 24$. **[1]**
Reasons (R): The sum of any two consecutive numbers is always odd.

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.

33. **Assertion (A):** 40000 is a perfect square number. **[1]**
Reasons (R): A perfect square is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer.

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.

34. **Assertion (A):** A number ending in an odd number of zeros is also a perfect square. **[1]**
Reason (R): Squares of even numbers are even.

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.

35. **Assertion (A):** The number of zeros in the square of the number 9000 is 6. **[1]**
Reasons (R): If a number ends with n zeros, its square ends with 2n zeroes.

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.

Section B

36. Write a Pythagorean triplet whose smallest number is 6. **[2]**
37. Find the square root of 6400 **[2]**
38. During a mass drill exercise, 6250 students of different schools are arranged in rows such that the number of students in each row is equal to the number of rows. In doing so, the instructor finds out that 9 children are left out. Find the number of children in each row of the square. **[2]**
39. Can a right-angled triangle with sides 6 cm, 10 cm, and 8 cm be formed? Give reason. **[2]**
40. Find the square of the number 39 without actual multiplication. **[2]**
41. Find the square root of 729 by the Prime Factorisation Method. **[2]**
42. The number 1057 is obviously not perfect square. Give reason. **[2]**
43. Using the given pattern, find the missing numbers: **[2]**

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

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

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

    $4^2 + 5^2 + \_^2 = 21^2$

    $5^2 + \_^2 + 30^2 = 31^2$

    $6^2 + 7^2 + \_\_\_^2 = \_\_\_^2$
44. Using prime factorisation, check whether 729 is perfect square or not. **[2]**
45. By repeated subtraction of odd numbers starting from 1 to find whether the following number are perfect square or not ? If the number is a perfect square then find its square root 49. **[2]**

Section C

46. Find the side of a square, whose area is equal to the area of a rectangle with sides 6.4 m and 2.5 m. **[3]**
47. Is the square of 431 will be an odd number? **[3]**
48. Find the smallest square number which is divisible by each of the numbers 6, 9 and 15. **[3]**
49. Find the value of: **[3]**

    a 45sq2 – 16sq2

    b 65 × 67

    c 104sq2

    d 120 × 124
50. The people in a society collected ₹7396 for charity. Each resident contributed the same amount as the number of residents. How many residents were there in the society? **[3]**
51. Find the length of the side of a square, if the length of its diagonal is 10 cm. **[3]**
52. Find the least number which must be added to 1825 so as to get a perfect square. Also find the square root of the perfect square so obtained. **[3]**
53. Find the lowest number, which must be added to 6,57,700 to get a perfect square. Also, find the square root of the perfect square so obtained. **[3]**
54. Find the least number which must be added to 1750 so as to get a perfect square. Also find the square root of the perfect square so obtained. **[3]**
55. Find the smallest number by which 1620 must be divided to get a perfect square. **[3]**

Section D

Question No. 56 to 60 are based on the given text. Read the text carefully and answer the questions: **[5]**

Once Ankur was studying squares of 2 digit natural numbers with unit digit 5

He found that :

$15^2 = (1 \times 2) \times 100 + 25 = 200 + 25 = 225$

$25^2 = (2 \times 3) \times 100 + 25 = 600 + 25 = 625$

$45^2 = (4 \times 5) \times 100 + 25 = 2000 + 25 = 2025$

Next day in the class he discussed this pattern with his Maths teacher .Teacher was very happy and thanked Ankur for such beautiful study. Teacher told that the squares of 2 digit natural numbers with unit digit 5 can be found very easily using this simple steps:

Step 1: Take the digit at 10's pace and multiply it by its successor(For example in 35 Find $3 \times 4 = 12$)

Step 2: Multiply the result by 100 ($1200 \times 100 = 1200$)

Step 3: Add 25 (1200 + 25 = 1225)

Thus $35^2 = 1225$

56. To find square of 45 first 4 has to be multiplied by what?

a) 4 b) 6

c) 5 d) 7

57. The square of 55 is the number?

a) 3000 b) 3025

c) 4025 d) 2525

58. The square of 75 is the number?

a) 3025 b) 5625

c) 4225 d) 2525

59. The square of $65^2 = (6 \times 7) \times 100 + 25 =$ _____.

60. In the first step the 10's digit is to be multiplied by its successor.

a) True b) False

Question No. 61 to 65 are based on the given text. Read the text carefully and answer the questions: **[5]**

If a natural number m can be expressed as N^2, where m is also a natural number, then m is a **square number**

$m = N^2$

- The square of any natural numbers end with 0, 1, 4, 5, 6 or 9 at unit place.
- None of these end with 2, 3, 7 or 8 at unit place.
- The square of a number with 0 at unit digits also ends with 0.

  For example $10^2 = 100$ and $100^2 = 10000$
- The square of a number with 1 and 9 at unit digits ends with 1.

  For example $11^2 = 121$ and $9^2 = 81$

- The square of a number with 4 and 6 at unit digits ends with 6.

  For example $14^2 = 196$ and $6^2 = 36$
- The square of a number with 3 and 7 at unit digits ends with 9

  For example $7^2 = 49$ and $13^2 = 169$
- The square of a number with 5 at unit digits ends with 5.

  For example $15^2 = 225$ and $25^2 = 625$

61. Which of following can not be a square number?

    a) 121 b) 169

    c) 625 d) 327

62. Which of following is a square number?

    a) 123 b) 576

    c) 627 d) 167

63. What will be the unit digit of the squares of 3857?

    a) 9 b) 5

    c) 7 d) 1

64. The square of an even number is always an _____ number.

65. 12347 can not be a square number.

    a) True b) False

66. Find $\sqrt{3969}$ by the long division method. **[5]**

67. The perimeters of two squares are 40 m and 96 m, respectively. Find the perimeter of another square equal in area to the sum of the first two squares. **[5]**

68. Find the smallest whole number with which 180 should be multiplied so as to get perfect square number. Also find the square root of the square number so obtained. **[5]**

69. Find the square root of 50.253921. **[5]**

70. The floor area of two square rooms is 256 square feet each. If one room's side length is doubled, what is the area of this room compared to the combined area of both original rooms? **[5]**

71. In a right triangle ABC, $\angle B = 90°$. If AB = 6 cm, BC = 8 cm, find AC. **[5]**

72. The students of Class VIII of a school donated ₹ 2401 for Prime Minister's National Relief Fund. Each student donated as many rupees as the number of students in the class. Find the number of students in the class. **[5]**

73. Find the smallest whole number with which 2645 should be divided so as to get a perfect square. Also find the square root of the square number so obtained. **[5]**

74. Find the smallest whole number with which 1458 should be multiplied so as to get perfect square number. Also find the square root of the square number so obtained. **[5]**

75. Express the following as the sum of two consecutive integers. **[5]**

    i. 21^2

    ii. 13^2

    iii. 11^2

iv. 19^2