MATHS

BOOKS - ASHOK PUBLICATION ASSAM

Cubes and Cube Roots

Example

1. Which of the following numbers are not perfect cubes?

216

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2. Which of the following numbers are not perfect cubes?

128

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3. Which of the following numbers are not perfect cubes?

1000

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4. Which of the following numbers are not perfect cubes?

100

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5. Which of the following numbers are not perfect cubes?

46656

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6. Find the smallest number by which each of the following numbers must be multiplied to obtain a perfect cube.

243

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7. Find the smallest number by which each of the following numbers must be multiplied to

obtain a perfect cube.

256

8. Find the smallest number by which each of the following numbers must be multiplied to obtain a perfect cube.

72

9. Find the smallest number by which each of the following numbers must be multiplied to obtain a perfect cube.

675

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10. Find the smallest number by which each of the following numbers must be multiplied to obtain a perfect cube.

100

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11. Find the smallest number by which each of the following numbers must be divided to obtain a perfect cube

81

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12. Find the smallest number by which each of the following numbers must be divided to

obtain a perfect cube

128

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13. Find the smallest number by which each of the following numbers must be divided to obtain a perfect cube

135

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14. Find the smallest number by which each of the following numbers must be divided to obtain a perfect cube

192

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15. Find the smallest number by which each of the following numbers must be divided to obtain a perfect cube

704

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16. Parikshit makes a cuboid of platicine of sides 5 cm, 2 cm, 5 cm. How many such cuboids will be need to form a cube?

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17. Find the cube root of each of the following numbers by prime factorisation method.

64

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18. Find the cube root of each of the following numbers by prime factorisation method.

512

19. Find the cube root of each of the following numbers by prime factorisation method.

10648

20. Find the cube root of each of the following numbers by prime factorisation method.

27000

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21. Find the cube root of each of the following numbers by prime factorisation method.

15625

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22. Find the cube root of each of the following numbers by prime factorisation method.

13824

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23. Find the cube root of each of the following numbers by prime factorisation method.

110592

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24. Find the cube root of each of the following numbers by prime factorisation method.

46656

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25. Find the cube root of each of the following numbers by prime factorisation method.

175616

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26. Find the cube root of each of the following numbers by prime factorisation method.

91125

27. State true or false

Cube of any odd number is even.

28. State true or false

A perfect cube does not end with two zeros.

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29. State true or false

If square of a number ends with 5, then its cube ends with 25.

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30. State true or false

There is no perfect cube which ends with 8.

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31. State true or false

The cube of a two digit number may be a three digit number.

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32. State true or false

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

33. State true or false

The cube of a single digit number may be a single digit number.

34. You are told that 1,331 is a perfect cube. Can you guess without factorisation what is its cube root? Similarly, guess the cube roots of 4913, 12167, 32768.

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35. Find the value of cube root of 1331.

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36. What is the smallest number by which 5000 must be divided to make it a perfect cube?

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37. Find the one's digit of the cube of each of the following numbers.

3331

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38. Find the one's digit of the cube of each of the following numbers.

8888

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39. Find the one's digit of the cube of each of the following numbers.

149

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40. Find the one's digit of the cube of each of the following numbers.

1005

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41. Find the one's digit of the cube of each of the following numbers.

1024

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42. Find the one's digit of the cube of each of the following numbers.

77

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43. Find the one's digit of the cube of each of the following numbers.

5022

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44. Find the one's digit of the cube of each of the following numbers.

53

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45. Observe the following pattern of sum of odd numbers.

$$1 = 1 = 1^3$$
$$3 + 5 = 8 = 2^3$$
$$7 + 9 + 11 = 27 = 3^3$$
$$13 + 15 + 17 + 19 = 64 = 4^3$$
$$21 + 23 + 25 + 27 + 29 = 125 = 5^3$$

6^3

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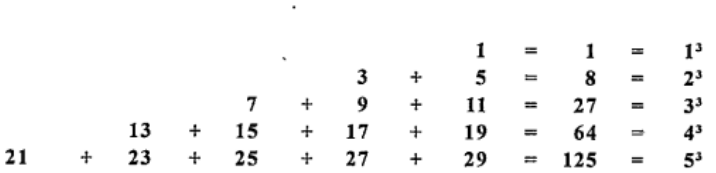
46. Observe the following pattern of sum of odd numbers.



$1 = 1 = 1^3$

$3 + 5 = 8 = 2^3$

$7 + 9 + 11 = 27 = 3^3$

$13 + 15 + 17 + 19 = 64 = 4^3$

$21 + 23 + 25 + 27 + 29 = 125 = 5^3$

8^3

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47. Observe the following pattern of sum of odd numbers.

$$
\begin{array}{ccccccccccccccc}
 & & & & & & & & 1 & = & 1 & = & 1^3 \\
 & & & & & & 3 & + & 5 & = & 8 & = & 2^3 \\
 & & & & 7 & + & 9 & + & 11 & = & 27 & = & 3^3 \\
 & & 13 & + & 15 & + & 17 & + & 19 & = & 64 & = & 4^3 \\
21 & + & 23 & + & 25 & + & 27 & + & 29 & = & 125 & = & 5^3
\end{array}
$$

7^3

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48. Consider the following pattern.

$2^3 - 1^3 = 1 + 2 \times 1 \times 3$

$3^3 - 2^3 = 1 + 3 \times 2 \times 3$

$4^3 - 3^3 = 1 + 4 \times 3 \times 3$

Using the above pattern, find the value of the

following.

$7^3 - 6^3$

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49. Consider the following pattern.

$2^3 - 1^3 = 1 + 2 \times 1 \times 3$

$3^3 - 2^3 = 1 + 3 \times 2 \times 3$

$4^3 - 3^3 = 1 + 4 \times 3 \times 3$

Using the above pattern, find the value of the following.

$12^3 - 11^3$

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50. Consider the following pattern.

$2^3 - 1^3 = 1 + 2 \times 1 \times 3$

$3^3 - 2^3 = 1 + 3 \times 2 \times 3$

$4^3 - 3^3 = 1 + 4 \times 3 \times 3$

Using the above pattern, find the value of the following.

$20^3 - 19^3$

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51. Consider the following pattern.

$2^3 - 1^3 = 1 + 2 \times 1 \times 3$

$3^3 - 2^3 = 1 + 3 \times 2 \times 3$

$4^3 - 3^3 = 1 + 4 \times 3 \times 3$

Using the above pattern, find the value of the following.

$51^3 - 50^3$

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52. Which of the following are perfect cubes?

400

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53. Which of the following are perfect cubes?

3375

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54. Which of the following are perfect cubes?

8000

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55. Which of the following are perfect cubes?

15625

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56. Which of the following are perfect cubes?

9000

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57. Which of the following are perfect cubes?

6859

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58. Which of the following are perfect cubes?

2025

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59. Which of the following are perfect cubes?

10648

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60. Check which of the following are perfect cubes.

2700

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61. Check which of the following are perfect cubes.

16000

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62. Check which of the following are perfect cubes.

64000

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63. Check which of the following are perfect cubes.

900

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64. Check which of the following are perfect cubes.

125000

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65. Check which of the following are perfect cubes.

36000

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66. Check which of the following are perfect cubes.

21600

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67. Check which of the following are perfect cubes.

10000

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68. Check which of the following are perfect cubes.

27000000

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69. Check which of the following are perfect cubes.

1000

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70. State true or false : For any integer $m, m^2 < m^3$. Why?

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