Worksheet

1. Fill in the blanks.
   a. The cube of an even number is always an _____ number.
   b. The cube of an odd number is always an _____ number.
   c. If $7^3 = 343$, then $\sqrt[3]{343} =$ _____.
   d. $\sqrt[3]{(-216)} =$ _____
   e. The cube of $1\frac{4}{7}$ is _____.
2. Evaluate the following.
   a. $(11)^3$ b. $(-7)^3$ c. $(0.6)^3$ d. $(-0.05)^3$
   e. $\left(-\frac{12}{13}\right)^3$ f. $\left(\frac{2}{5}\right)^3$ g. $\left(\frac{3}{5}\right)^3$ h. $(0.3)^3$
3. Check whether the following numbers are perfect cubes or not.
   a. 15243 b. 13824 c. 10000 d. 24389
4. Find the cube root of the following numbers by prime factorisation method.
   a. 110592 b. 27000 c. –10648 d. –19683
5. Find the cube root of the following.
   a. 0.000216 b. 0.000008
6. Find the smallest number that has to be multiplied with each of the following numbers so that the product is a perfect cube.
   a. 41472 b. 45125 c. 45387
7. Find the least number by which the following numbers must be divided so that the quotient is a perfect cube.
   a. 71874 b. 15552 c. 35152
8. Find the cube root of the following.
   a. $\sqrt[3]{-343 \times 64}$ b. $\sqrt[3]{-27 \times 1728}$
9. The volume of a cube is 46656 cm^3. Find the length of a side of the cube.
10. Side length of a cube is 3.1 cm. Find the volume of the cube.
11. Show that:
    a. $\sqrt[3]{64} \times \sqrt[3]{27} = \sqrt[3]{64 \times 27}$ b. $\sqrt[3]{0.008} \times \sqrt[3]{343} = \sqrt[3]{0.008 \times 343}$
12. Simplify: $\frac{\sqrt[3]{0.064}}{\sqrt[3]{0.000027}}$
13. What is the value of $\sqrt[3]{-3375} \times \sqrt[3]{3375}$?
14. Find the value of $\sqrt[3]{125} + \frac{1}{\sqrt[3]{125}}$.
15. Solve: $\sqrt[3]{1728} + \frac{1}{\sqrt[3]{-64}} \times \sqrt[3]{1728}$

16. Find the smallest number by which 332024 must be multiplied so that the product is a perfect cube. Also, find the cube root of the product.

17. Find the smallest number by which 69120 must be divided so that the quotient is a perfect cube. Also, find the cube root of the quotient.

18. The cubes of sides 6 cm, 8 cm and 10 cm each are melted to form a single big cube. Find the total surface area of the new cube.

19. If the sides of the three cubes are in the ratio 2 : 3 : 4 and their total volume is 21384 cm^3, find the dimensions of each cube.

20. Classify the following statements as True (T) or False (F).
    a. The cube root of $-x^3$ is x.
    b. The cube root of a number x is denoted by $3\sqrt{x}$.
    c. a is the cube root of b if $b = a^3$.
    d. Cube and cube root of a negative number is always negative.
    e. The cube of a natural number which is a multiple of 3 is a multiple of 18.
    f. Cube of a prime number is a prime number.

Answers to Worksheet

1. a. even b. odd c. 7 d. –6 e. $3\frac{302}{343}$

2. a. 1331 b. –343 c. 0.216 d. –0.000125
   e. $-\frac{1728}{2197}$ f. $\frac{8}{125}$ g. $\frac{27}{125}$ h. 0.027

3. a. No b. Yes c. No d. Yes

4. a. 48 b. 30 c. –22 d. –27

5. a. 0.06 b. 0.02 6. a. 9 b. 19 c. 41

7. a. 2 b. 9 c. 2 8. a. –28 b. –36

9. 36 cm 10. 29.791 cm^3 12. $\frac{40}{3}$ 13. –225

14. $5\frac{1}{5}$ 15. 9 16. 11, 154 17. 5, 24 18. 864 cm^2

19. 12 cm, 18 cm, 24 cm

20. a. F b. F c. T d. T e. F f. F