GIRLS' HIGH SCHOOL AND COLLEGE , PRAYAGRÀJ

Work sheet no - 3

Session-2020-2021

Class 8-(A,B,C,D,E)

Subject- Mathematics.

Chapter- Cubes and Cube-Roots.

INSTRUCTIONS: Parents kindly ensure that the student understands the given examples to solve the questions that follow. A Maths text book of (class7 or 8) can be referred by the student for better understanding . They can also refer to Internet .

Example 1: Cubes of odd natural numbers are odd, as $3^3=3\times3\times3=27$, Cube of even natural numbers are even, as $2^3=2\times2\times2=8$ and $6^3=6\times6\times6=216$

Q 1: List which of the following are cubes of even numbers and odd numbers?

i) 216	ii) 729	iii) 3375	iv)8000
v) 125	vi)343	vii)4096	viii)9261.

Example 2: The cube of a number is called a perfect cube, as (i) $4^3 = 4\times4\times4 =64$ is a perfect cube.(ii) $(1.2)^3=1.2\times1.2\times1.2=1.728$ is a perfect cube.

Q2: Find the cube of:

(i) 7 ii) 16 (iii) 23 (iv)31

(v) 2.1 (vi)0.4 (vii) 2.5 (viii)0.12

Example 3: Cube of fractional numbers (2/7) = $(2/7)^3$=2×2×2/7×7××7 =8/343 numerator and denominator to be multiplied three times by the given number.

Q3: Find cubes of:

(i) 3/8 (ii) 8/9 (iii)10/13

(iv)1.2/1.3 (v) $1\frac{7}{8}$

Example 4: Is 297 a perfect cube? Find prime factors of 297=3×3×3×11 since triplet of 11 is not formed therefore 297 is not a perfect cube.

Q4: Find which of the following are perfect cube?

(i)243 (ii) 1331 (iii) 1728

(iv)24000. (v)1938

Example 5: What is the smallest number by which 3087 maybe multiplied so that the product is a perfect cube.

Sol: Find prime factors of 3087=3×3(7×7×7) one 3 is missing to make a triplet of 3,therefore 3087 should be multiplied by 3 , to make it a perfect cube.

Q5: (i) Find the least number by which 1323 must be multiplied so that the product is a perfect cube.

(ii). Find the smallest number that must be multiplied to 77175 to make it a perfect cube.

Example 6: How to make the quotient of a number a perfect cube? By what least number 6750 may be divided so that the quotient becomes a perfect cube?

Sol: On finding the prime factors of 6750 we get 6750=2×(3×3×3)(5×5×5)since 2 does not make a triplet thus the number is divided by 2 to make it a perfect cube.

$(3\times3\times3)(5\times5\times5)=3\times5=(15)^3$

Q6: (i) By what least number must 8640 be divided to make it a perfect cube ?
(ii)Find the smallest number by which 26244 should be divided so that the quotient is a perfect cube.

Example 7: Cube root of a negative perfect cube i.e. $\sqrt[3]{-1000} = \sqrt[3]{(-10\times-10\times-10)} = -10$.

Q7: Find cube roots of:

(i) -512 (ii) -1331

(iii) -27/125 (iv) -64/343

Example 8: Cube root of decimal numbers i.e 0.125 =125/1000. Find prime factors of the numerator and the denominator (5×5×5/10×10×10)=5/10=0.5

Q 8:Find the cube roots of:

(i)0.064 (ii)0.512 (iii)0.000027

(iv) -125 × 1000 (v)2.744

Q9:Find the cube roots of:

(i) 729 (ii) 1728 (iii) 8000

(iv)64×27 (v)729×8000

Q10:Find cube roots of the following:

(i) -27/343 (ii) -64 × -125 (iii) -216×1728

(iv) 700×2×49×5 (v) 250.047

Q11. Solve the following:-

(i) $(54)^3$ (ii) $(0.02)^3$ (iii) $(3/7)^3$

(iv) $(-30)^3$ (v) $\sqrt[3]{4096}$ (vi) $\sqrt[3]{-15.625}$

*****END***.**