MATHEMATICS **CUBES AND CUBE ROOTS (PART – II)** *STD. VIII*

General instructions for Students: Whatever be the notes provided, everything must be copied in the Maths copy and then do the HOMEWORK in the same copy.

Properties Of Cubes Of Natural Numbers

1. Cubes of odd numbers are odd and cubes of even numbers are even.

Odd Number	Cube
1	1
3	27
5	125
7	343
9	729

Even Number	Cube
2	8
4	64
6	216
8	512
10	1000

2. (i) If a number has 1, 4, 5, 6 or 9 in the unit place, then its cube also ends with same digits.

Example:

$(11)^3$	1331
$(14)^3$	2744
$(15)^3$	3375
$(16)^3$	4096
$(19)^3$	6859

(ii) If a number has 2 in the unit place, then its cube ends in 8.

Example: $(12)^3 = 1728$ $(22)^3 = 10648$

(iii) If a number has 8 in the unit place, then its cube ends in 2.

Example: $(18)^3 = 5832$ $(28)^3 = 21952$

(iv) If a number has 3 in the unit place, then its cube ends in 7.

Example: $(13)^3 = 2197$ $(23)^3 = 12167$

(v) If a number has 7 in the unit place, then its cube ends in 3.

Example: $(17)^3 = 4913$ $(27)^3 = 19683$

(vi) If a number has 0 in the unit place, then its cube ends in 0.

Example: $(10)^3 = 1000$ $(20)^3 = 8000$

Cubes Of Negative Integers

For Example: $(-3)^3 = (-3) \times (-3) \times (-3) = -27$

$(-5)^3 = (-5) \times (-5) \times (-5) = -125$

NOTE: Cube of a negative integer is always negative

Cubes Of Rational Numbers: $If\ \frac{p}{q}\ (q \neq 0)\ is\ a\ rational\ number, then$

$$(\frac{p}{q})^3 = \frac{p}{q} \times \frac{p}{q} \times \frac{p}{q}$$

$$\therefore \quad (\frac{p}{q})^3 = \frac{p^3}{q^3}$$

For Example: $(\frac{2}{3})^3 = \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} = \frac{8}{27}$

For Example: $(\frac{-3}{5})^3 = \left(\frac{-3}{5}\right) \times \left(\frac{-3}{5}\right) \times \left(\frac{-3}{5}\right) = \frac{-27}{125}$

HOMEWORK

EXERCISE - 4.1

QUESTION NUMBERS: 5, 6 7, 8 and 9.

X

EXPERIMENT NO .2

Points to remember .

**Read and understand the experiment.*

**In the Maths Practical Copy write down AIM, MATERIAL REQUIRED , METHODOLOGY , TABULAR COLUMN and CONCLUSION on the ruled page. DIAGRAM and CALCULATION on the plane page.*

**Follow the PROCEDURE properly to get the correct conclusion.*

**All the Maths practicals must be done in the same Maths Lab copy.*

**MATHS PRACTICAL COPY must be a soft cover Lab copy with atleast 50 to 60 pages*

AIM: To find which triangle (equilateral or isosceles or scalene) will have maximum area , if the perimeter is kept constant.

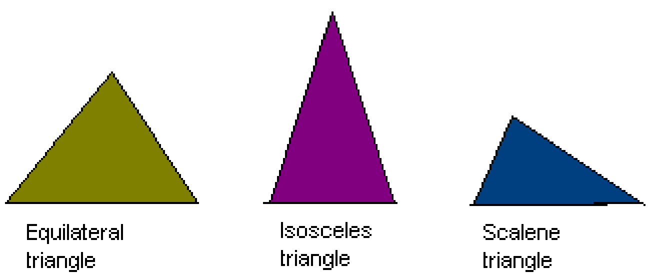
MATERIAL REQUIRED:

1) Plastic straw 2) Ruler & Pencil 3) Setsquares 4) Protractor.

METHODOLOGY:

1) Area of equilateral triangle $=\frac{\sqrt{3}}{4}a^2$, where 'a' is the length of the side.

2) Area of a triangle $=\frac{1}{2} base \times height$



PROCEDURE: Follow the steps below in order

Step 1. Fold the given straw so that it will form an equilateral triangle.

Step 2. Place it on a white sheet and mark its vertices.

Step 3. Connect the vertices by using ruler and pencil and confirm that the triangle is equilateral.

Step 4. Repeat the above steps by making an isosceles triangle and a scalene triangle with the help of the same straw .Also draw one of its altitudes by using setsquares.

Step 5. Measure the necessary data for calculating the area.

Step 6. Calculate the area of triangle in each case.

OBSERVATION TABLE AND CALCULATION:

Trial no.	Name of the triangle	Dimensions	Area	perimeter
1 2 3	Equilateral Isosceles Scalene	a=------ b=--- h=----- b=----- h=-----		

CONCLUSION:

1) For all triangles perimeter is the same but areas are different.

2) For a constant perimeter --------------triangle has the maximum area.