

# MATHEMATICS



Topic: Squares ,cubes, square roots and cube roots

- ❖ When we are squaring or cubing a common fraction, we square or cube both the numerator and the denominator.  $(\frac{a}{b})^2 = \frac{a^2}{b^2}$ ,  $(\frac{a}{b})^3 = \frac{a^3}{b^3}$
- ❖ When finding the square root or cube root of a common fraction we square root or cube root both the numerator and the denominator.  $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ ,  $\sqrt[3]{\frac{a}{b}} = \frac{\sqrt[3]{a}}{\sqrt[3]{b}}$
- ❖ There no square root of a negative number and the cube root of a negative number is always negative.

# Worked Examples

Calculate:

$$1. \quad \left(\frac{1}{2}\right)^2 = \frac{1^2}{2^2} = \frac{1 \times 1}{2 \times 2} = \frac{1}{4}$$

$$\begin{aligned} 2. \quad & \left(-\frac{2}{3}\right)^3 \\ &= -\frac{2^3}{3^3} \\ &= -\frac{2 \times 2 \times 2}{3 \times 3 \times 3} \\ &= -\frac{8}{27} \end{aligned}$$

$$\begin{aligned} 3. \quad & \sqrt{\frac{1}{49}} \\ &= \sqrt{\frac{1 \times 1}{7 \times 7}} \\ &= \frac{1}{7} \end{aligned}$$

$$\begin{aligned} 4. \quad & \sqrt[3]{-\frac{1}{25}} \\ &= \sqrt[3]{-\frac{1 \times 1 \times 1}{5 \times 5 \times 5}} \\ &= -\frac{1}{5} \end{aligned}$$

# Exercise 13.6 pg 166

Calculate the following

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.