Std. – VIII

Chapter – 01

Square and square root

Q1. **Show that (10, 24, 26) is a Pythagorean triplet and also verify it.**

Q2. **How many non square numbers between $(101)^2$ and $(102)^2$?**

Q3. **Write thousand place of $(11111)^2$.**

Q4. **Write square root of 256 by repeated subtraction method.**

Q5. **Write square root of 4096 by prime factorization method.**

Q6. **Find the smallest number by which 3645 must be divided so that it becomes a perfect square. Also find the square root of the resulting number.**

Q7. **An officer wants to arrange 202500 cadets in the form of a square. How many cadets were there in each row ?**

Q8. **Find the square root of 1471369 by long division method.**

Q9. **Find the greatest number of 6-digits which is a perfect square. Also find the square root of the number so obtained.**

Q10. **Find the least number of 6-digits which is a perfect square. Find the square root of the number so obtained.**

Q11. **Find the square root of $23\frac{394}{729}$**

Q12. **Find the square root of 150.0625**

Q13. **Find the square root of 7 correct to three decimal places.**

Q14. **Find the square root of 410 by estimation.**

Q15. **The area of square plot is $800\ m^2$. Find the estimated length of the side of the plot.**

Chapter – 02

Cubes and cube roots

Q1. **Find the smallest number by which 2560 must be multiplied so that the product is a perfect cube.**

Q2. **Find the smallest number by which 8788 be divided so that the quotient is a perfect cube.**

Q3. **Find the cube root of 21952 by prime factorization method.**

Q4. **Find the cube root of -2744000**

Q5. **Evaluate :**

(i) $\sqrt[3]{8 \times 125}$ **(ii)** $\sqrt[3]{3375 \times (-729)}$ **(iii)** $\sqrt[3]{4^3 \times 5^3}$

Q6. **Find the cube root of the following rational numbers.**

(i) $\frac{-512}{343}$ **(ii)** $\frac{-686}{-2662}$

Q7. **Find the cube root of 91125 through estimation.**

Q8. **A school decided to award prizes to students for three values – discipline, cleanliness of environment and regularity in attendance. The numbers of students getting prizes in the three categories are in the ratio 1:2:3. If product of ratios is 162, then –**

(a.) **Find the number of students getting prizes for each value.**

(b.) **Name any other two values that you can inculcate.**

Q9. **Prove that if a number is tripled, then its cube is 27 times the cube of the given number.**

Q10. **Find the cube of -0.01**

Q11. **Find the values of the followings cube roots.**

(i) $\sqrt[3]{0.008}$ **(ii)** $\sqrt[3]{\frac{-64}{1331}}$ **(iii)** $\sqrt[3]{27 \times 2744}$

Q12. **Evaluate :**

$$\sqrt[3]{\frac{0.027}{0.008}} \div \sqrt{\frac{0.09}{0.04}} - 1$$

Q13. **Evaluate :**

$$\sqrt[3]{288\sqrt[3]{72\sqrt[3]{27}}}$$

Q14. **Three numbers are in the ratio 2:3:4 . The sum of their cubes 33957. Find the numbers.**

Q15. **Find the volume of a cube whose surface area is 150 m^2.**

Chapter – 03

Exponents and Radicals

Q1. **Write the laws of exponents.**

Q2. **Verify that –**

$$\left[(729)^{\frac{-5}{3}}\right]^{\frac{-1}{2}} = (729)^{\frac{-5}{3}\times\left(\frac{-1}{2}\right)}$$

Q3. **Simplify :**

$$\frac{(64)^{\frac{-1}{6}} \times (216)^{\frac{-1}{3}} \times (81)^{\frac{1}{4}}}{(512)^{\frac{-1}{3}} \times (16)^{\frac{1}{4}} \times (9)^{\frac{-1}{2}}}$$

Q4. **Simplify and express the answer with positive exponents :**

$$\left[\sqrt[3]{x^4y} \times \frac{1}{\sqrt[3]{xy^7}}\right]^{-4}$$

Q5. **Evaluate :**

(i) $3\times (16)^{\frac{3}{4}}$ **(ii)** $2\times (27)^{\frac{-2}{3}}$ **(iii)** $2\times 9^{\frac{3}{2}} \times 9^{\frac{-1}{2}}$

Q6. **Find the value of** $\left[(5)^2 + (12)^2\right]^{\frac{1}{2}}$

Q7. **Find the value of x , if :**

(i) $2^x + 2^x + 2^x = 192$

(ii) $8^{255} = (32)^x$

(iii) $2^{2x+2} = 4^{2x-1}$

Q8. **If** $4^x - 4^{x-1} = 24$ **, then find the value of x.**

Q9. **Evaluate :**

$(6^{-1} - 8^{-1})^{-1} + (2^{-1} - 3^{-1})^{-1}$

Q10. **If** $3^{x-1} = 9$ **and** $4^{y+2} = 64$ **, find the value of** $\frac{y}{x} - \frac{x}{y}$

Q11. **If** $9^x \times 3^2 \times \left[3^{\frac{-x}{2}}\right]^{-2} = \frac{1}{27}$ **, find x.**

Q12. **By what number should** $\left[\frac{-3}{2}\right]^{-3}$ **be divided so that the quotient may be** $\left[\frac{-8}{27}\right]^{-2}$