

Mathematics Assignment No. 4 class X
NUMBER SYSTEM

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Q1. Simplify

i) $\sqrt[3]{2} \cdot \sqrt[3]{32}$

ii) $\sqrt[3]{54}$

[Ans i) 4 ii) $3\sqrt[3]{2}$]

Q2 Simplify

i) $\sqrt[3]{\frac{27}{64}}$

ii) $\sqrt[4]{\frac{1000}{63}}$

[Ans :- i) $\frac{3}{4}$ ii) 2]

Q3. Simplify :-

$$4\sqrt{2} - 2\sqrt{8} + \frac{3}{\sqrt{2}}$$

[Ans: $\frac{3\sqrt{2}}{2}$]

Q4. Simplify :-

$$\sqrt{48} - \sqrt{72} - \sqrt{27} + 2\sqrt{18} \quad [\text{Ans:- } 6\sqrt{2}]$$

Q5. Multiply :-

$$2 \cdot \sqrt{3} \times 5\sqrt{81}$$

[Ans : $30\sqrt{3}$]

Q6 Simplify

$$\frac{\sqrt{75} \times \sqrt{60} \times \sqrt{63}}{\sqrt{40} \times \sqrt{200}}$$

[Ans :- $\frac{9\sqrt{7}}{4}$]

Q7. Rationalise the denominator of $\frac{1}{\sqrt{2} + \sqrt{3}}$

[Ans:- $\sqrt{3} - \sqrt{2}$]

Q8. Rationalise the denominator of $\frac{6 - 4\sqrt{2}}{6 + 4\sqrt{2}}$

[Ans $17 - 12\sqrt{2}$]

Q9. Find the value of a and b in each of the following

i) $\frac{\sqrt{3} - 1}{\sqrt{3} + 1} = a + b\sqrt{3}$

ii) $\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}} = a + b\sqrt{3}$

[Ans i) $a = 2$
 $b = -1$ ii) $a = 11$
 $b = -6$]

Q10. If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$

[Ans:- 14]