Mathematics Assignment No 4 Class X

NUMBER SYSTEM

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) $\sqrt[4]{\frac{1008}{63}}$

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

Q3. Simplify :-

$4\sqrt{2} - 2\sqrt{8} + \frac{3}{\sqrt{2}}$ [Ans : $\frac{3}{2}\sqrt{2}$]

Q4. Simplify :-

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

Q5. Multiply :-

$2 \cdot \sqrt[4]{3} \times 5\sqrt[4]{81}$ [Ans : $30\sqrt[4]{3}$]

Q6 Simplify

$$\frac{\sqrt{75} \times \sqrt{60} \times \sqrt{63}}{\sqrt{40} \times \sqrt{200}}$$ [Ans :- $\frac{9}{4}\sqrt{7}$]

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]