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NUMBER SYSTEM

ASSIGNMENT NO. 9

1. Find the two irrational numbers between 0.5 and 0.55
2. Find the value of $(729)^{\frac{-1}{6}}$
3. Show that $0.2\overline{35}$ can be expressed in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.
4. Find the value of a and b, when $a + b\sqrt{15} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$
5. If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}, y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then find the value of $x^2 + y^2 + xy$.
6. If $x = 3 - 2\sqrt{2}$, find $x^3 - \frac{1}{x^3}$
7. Prove that: $\frac{1}{\sqrt{4}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{8}} + \frac{1}{\sqrt{8}+\sqrt{9}} = 1$
8. If $7x = 1$, then find the decimal expansion of x.
9. Find four rational numbers between $\frac{1}{5}$ and $\frac{1}{6}$.
10. Evaluate: $\frac{\sqrt[3]{2} \cdot 4^{\frac{3}{2}}}{(128)^{\frac{1}{3}}}$

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