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NUMBER SYSTEM

ASSIGNMENT NO. 24

1. Simplify: $\left(\frac{81}{16}\right)^{-\frac{3}{4}} \times \left[\left(\frac{25}{9}\right)^{-\frac{5}{2}} \div \left(\frac{5}{2}\right)^{-3}\right]$
2. Simplify: $\left(\frac{81}{16}\right)^{-\frac{3}{4}} \times \left(\frac{25}{9}\right)^{-\frac{3}{2}}$
3. Represent $\sqrt{5.6}$ on the number line.
4. If $x = 5 + 2\sqrt{6}$, find the value of $x^2 + \frac{1}{x^2}$
5. Find the value of a and b if $\frac{5+\sqrt{3}}{7-4\sqrt{3}} = a + b\sqrt{3}$.
6. If $x = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ and $y = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$, find the value of $x^2 + y^2$.
7. If $x = \frac{1}{2-\sqrt{3}}$, find the value of $x^3 - 2x^2 - 7x + 5$.
8. Evaluate $\frac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$, if $\sqrt{5} = 2.236$ and $\sqrt{10} = 3.162$
9. Find the value of $(1^3 + 2^3 + 3^3)^{-\frac{3}{2}}$
10. If $x = 7 + 4\sqrt{3}$, find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$