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NUMBER SYSTEM

ASSIGNMENT NO. 33

1. Represent $\sqrt{3}$ on the number line.
2. Evaluate; $\left(\sqrt{2}+\sqrt{3}\right)^2+\left(\sqrt{5}-\sqrt{2}\right)^2$
3. If $x=1+\sqrt{2}$, find the value of $x^2+\frac{1}{x^2}$
4. Rationalise the denominator and simplify $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}+\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$
5. Simplify: $\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}$
6. If $x=\frac{\sqrt{5}+1}{\sqrt{5}-1}, y=\frac{\sqrt{5}-1}{\sqrt{5}+1}$, find the value of x^2+xy+y^2
7. Find a and b, when $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}+2\sqrt{3}}=a-b\sqrt{6}$
8. Which is smaller: $\sqrt[5]{10}$ or $\sqrt[4]{9}$.
9. If $a=3-2\sqrt{2}$, find the value of $a^2+\frac{1}{a^2}$
10. Simplify: $\sqrt{294}-\sqrt{150}+2\sqrt{6}-\frac{3}{\sqrt{6}}$
11. If $2^{x-7}\times 5^{x-4}=1250$, then find x.
12. Simplify: $x=\frac{\sqrt{5}-\sqrt{2}}{\sqrt{5}+\sqrt{2}}, y=\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}}$, find x^2+xy+y^2
13. Find the values of a and b if $\frac{3\sqrt{2}+2\sqrt{3}}{5\sqrt{2}-4\sqrt{3}}=a-b\sqrt{6}$