

1. If $x = \frac{1}{2-\sqrt{3}}$, find the value of $x^2 - 4x + 1$.
2. Simplify: $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32}$
3. Write $\sqrt[3]{4}, \sqrt{3}, \sqrt[4]{6}$ in ascending form.
4. If $x = \frac{\sqrt{p+2q} + \sqrt{p-2q}}{\sqrt{p+2q} - \sqrt{p-2q}}$, then show that $qx^2 - px + q = 0$.
5. If $\sqrt{2} = 1.414$ and $\sqrt{3} = 1.732$, then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$
6. If $xyz = 1$, then show that $(1 + x + y^{-1})^{-1} + (1 + y + z^{-1})^{-1} + (1 + z + x^{-1})^{-1} = 1$
7. If $x = 3 - 2\sqrt{2}$, then find the value of $x^4 - \frac{1}{x^4}$.
8. If $\frac{5+3\sqrt{2}}{5-3\sqrt{2}} = a + b\sqrt{2}$, then find the value of a and b .
9. Simplify: $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$
10. Evaluate: $(\sqrt{5} + \sqrt{2})^2 + (\sqrt{8} - \sqrt{5})^2$