

1. Find the value of x : $\left(\frac{5}{4}\right)^3 \times \left(\frac{4}{5}\right)^{-7} = \left(\frac{5}{4}\right)^{2x}$
2. Express $0.12\bar{3}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.
3. Find the product of $(2\sqrt{15} + \sqrt{5})(\sqrt{15} + 3\sqrt{5})$ and write the rational and irrational parts of the product.
4. If $x = 2 - \sqrt{3}$, find $x^4 + \frac{1}{x^4}$
5. Simplify: $\frac{3}{5\sqrt{2}-\sqrt{3}} + \frac{2}{5\sqrt{2}+\sqrt{3}} + \frac{22\sqrt{2}-\sqrt{3}}{47}$
6. Arrange in ascending order: $\sqrt[3]{7}, \sqrt[4]{11}, \sqrt[6]{50}$
7. Represent $\sqrt{3}$ on the number line.
8. Simplify: $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$
9. Simplify the following by rationalising the denominator: $\frac{7\sqrt{3}-5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$
10. Simplify: $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}} + \frac{2\sqrt{3}}{\sqrt{6}+2}$