

Concept_Grade-9_Real Numbers

Rationalization

1. If $x = 2 + \sqrt{3}$, then find the value of $x^2 + \frac{1}{x^2}$.
2. If $a = 2 + \sqrt{5}$ and $b = \frac{1}{a}$, find $a^2 + b^2$.
3. If $x = \sqrt{2} - 1$, then find the value of $\left(x - \frac{1}{x}\right)^3$.
4. Find the values of 'a' and 'b' when $\frac{5 + \sqrt{6}}{5 - \sqrt{6}} = a + b\sqrt{6}$
5. Find a and b if $\frac{1 - \sqrt{3}}{1 + \sqrt{3}} = a + b$.
6. If $\frac{30}{4\sqrt{3} + 3\sqrt{2}} = 4\sqrt{3} - a\sqrt{2}$ then find the value of a.
7. Find the value of a and b if $\frac{\sqrt{2} + 1}{\sqrt{2} - 1} = a + \sqrt{2} b$
8. Rationalize the denominator of $\frac{1}{(\sqrt{2} + \sqrt{3}) - \sqrt{4}}$
9. If $x = 4 - \sqrt{15}$, then find the value of $\left(x + \frac{1}{x}\right)^3$.

