



Assignment questions based upon online class

**Maths home work (IX)**

1.  $\frac{5 - 2\sqrt{3}}{7 - 4\sqrt{3}} = a - \sqrt{3}b$

2.  $\frac{1 - \sqrt{3}}{1 + \sqrt{3}} = a + b$

3.  $\frac{3\sqrt{2} + 2\sqrt{3}}{5\sqrt{2} - 4\sqrt{3}} = a - b\sqrt{2}$

4.  $\frac{7 + \sqrt{3}}{7 - \sqrt{3}} - \frac{7 - \sqrt{3}}{7 + \sqrt{3}} = a + \sqrt{3}b$

5. If  $a = 2 + \sqrt{3}$  then find the value of  $a - \frac{1}{a}$ .

6. If  $x = 3 - 2\sqrt{2}$  then find the value of  $x^2 - \frac{1}{x^2}$

7. If  $x = 1 - \sqrt{2}$  then find the value of  $\left(x - \frac{1}{x}\right)^2$

8. If  $x = 3 - \sqrt{8}$  then find the value of (i)  $x + \frac{1}{x}$  (ii)  $x^2 + \frac{1}{x^2}$

9. If  $a = 5 + 2\sqrt{6}$  and  $b = \frac{1}{a}$  then what will be the value of  $a^2 + b^2$ ?

10. If  $x = \frac{1}{3 - 2\sqrt{2}}$ ,  $y = \frac{1}{3 + 2\sqrt{2}}$ , find  $x + y + xy$

11. If  $x = \frac{1}{7 + 4\sqrt{3}}$ ,  $y = \frac{1}{7 - 4\sqrt{3}}$ , find  $x^3 + y^3$

12. If  $x = \frac{\sqrt{2} + 1}{\sqrt{2} - 1}$ ,  $y = \frac{\sqrt{2} - 1}{\sqrt{2} + 1}$ , find  $x^2 + y^2 + xy$

13. If  $x = \frac{\sqrt{3} + 1}{2}$ , find the value of  $4x^3 + 2x^2 - 8x + 7$

14. If  $x = 3 - 2\sqrt{2}$ , find the values of (i)  $\sqrt{x} + \frac{1}{\sqrt{x}}$  (ii)  $\sqrt{x} - \frac{1}{\sqrt{x}}$

Rationalise the denominator of

15.  $\frac{1}{1 + \sqrt{2} - \sqrt{3}}$