



# DOON PUBLIC SCHOOL

(C.B.S.E. Affiliation No. 1030502)

## Mathematics Holiday Assignment-2 Session-2021-22

1. Express  $1.\overline{32} + 0.35$  as a fraction in simplest form.

2. Express  $0.\overline{1254}$  in the form  $p/q$

3. If  $x = 3 + 2\sqrt{2}$ , find the value of  $x^2 + 1/x^2$

4. If  $x = 2 + \sqrt{5}$ , Prove that  $x^2 + \frac{1}{x^2} = 18$

5. Rationalise the denominator  $\frac{1}{\sqrt{6} + \sqrt{5} - \sqrt{11}}$

6. If  $a$  and  $b$  are rational numbers, find  $a$  and  $b$

$$a) \frac{\sqrt{2} + \sqrt{3}}{3\sqrt{2} - 2\sqrt{3}} = a + b\sqrt{6}$$

$$b) \frac{\sqrt{5} - 2}{\sqrt{5} + 2} - \frac{\sqrt{5} + 2}{\sqrt{5} - 2} = a + b\sqrt{5}$$

9. Simplify: a)  $\frac{1}{1 + \sqrt{2}} + \frac{1}{\sqrt{2} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{4}}$

10. If  $a = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$  and  $b = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ , find the value of  $a^2 + b^2$

11. If  $a = 9 - 4\sqrt{5}$ , find the value of  $a - \frac{1}{a}$

12. If  $x = 1 - \sqrt{2}$ , find the value of  $x - \frac{1}{x}$

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

14. If  $x = 0.125$ , find the value of  $(1/x)^{1/3}$

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

16. If  $x = \frac{1}{2 - \sqrt{3}}$ , find the value of  $x^3 - 2x^2 - 7x + 5$

17. Find four rational numbers between  $3/5$  and  $4/5$

18. Find two irrational numbers lying between  $\sqrt{2}$  and  $\sqrt{3}$