

**CBSE TEST PAPER-05  
CLASS - IX MATHEMATICS (Number System)**

- 1) If  $x = 3 + 2\sqrt{2}$ , find  $x^4 + \frac{1}{x^4}$
- 2) Give two rational numbers lying between  $0.232332333233332\dots$  and  $0.212112111211112\dots$
- 3) Give examples of two irrational numbers, the product of which is: (i) a rational number (ii) an irrational number
- 4) Rationalize the denominator of the following: (i)  $1/(\sqrt{2} + \sqrt{3} + \sqrt{5})$  (ii)  $(\sqrt{3}-1) / (\sqrt{3}+1)$
- 5) Show by taking examples that the sum of two irrational numbers may or may not be an irrational number.
- 6) Evaluate:  $1/(\sqrt{5}-\sqrt{3}+\sqrt{2})$
- 7) Represent each number on number line  $8/3$ ,  $1.3$ ,  $-24$ ,  $23/6$
- 8) Find a rational number lying between (i)  $0.75$  and  $1.2$  (ii)  $-3/4$  and  $-2/5$
- 9) Insert six rational nos. between  $3$  and  $4$
- 10) Insert 16 rational nos. between  $2.1$  and  $2.2$
- 11) Express  $0.999999\dots$  as a fraction in simplest form
- 12) Express  $0.\overline{36}$  and  $0.5\overline{6}$  in the simplest form of rational no.
- 13) Without actual division, find which of the following rational are terminating decimal.  $7/24$ ,  $16/125$
- 14) Write three number having non terminating non repeating decimal
- 15) Find an irrational number between  $1/7$  and  $2/7$
- 16) Represent following on Real line  $\sqrt{2}, \sqrt{3}, \sqrt{5}$ ,  $\sqrt{9.3}$ ,  $\sqrt{8.47}$
- 17) Classify as a rational and irrational number and give reason to support your answer  
(i)  $3.040040004\dots$  (ii)  $2/38.46$  (iii)  $\sqrt{7} - \sqrt{2}$  (IV)  $3 + \sqrt{3}$
- 18) Simplify the following expression.  
(i)  $(3\sqrt{2} + 7\sqrt{3}) + (\sqrt{2} - 5\sqrt{3})$  (II)  $5\sqrt{11} \times 3\sqrt{11}$  (III)  $(\sqrt{13} - \sqrt{6})(\sqrt{13} + \sqrt{6})$  (IV)  $(6 + \sqrt{6})(6 - \sqrt{6})$   
(v)  $15\sqrt{15} \sqrt{3\sqrt{5}}$
- 19) Rationalize (i)  $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$  (ii)  $\frac{2+\sqrt{3}}{2-\sqrt{3}} = a+b\sqrt{3}$  (find a and b) (iii)  $\frac{1}{1+\sqrt{2}+\sqrt{3}}$
- 20) if  $x = 3 + \sqrt{8}$  find the value of  $x^2 + \frac{1}{x^2}$
- 21) Simplify  $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} + \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$
- 22) Show that  $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{8}-\sqrt{7}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} = 1$
- 23) Visualize  $4.27$  on number line up to 4 decimal