

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... and 0.21211211121112....
- 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) $\frac{1}{\sqrt{2} + \sqrt{3} + \sqrt{5}}$ (ii) $\frac{\sqrt{3}-1}{\sqrt{3}+1}$
- 5) Show by taking examples that the sum of two irrational numbers may or may not be an irrational number.
- 6) Evaluate: $\frac{1}{\sqrt{5}-\sqrt{3}+\sqrt{2}}$
- 7) Represent each number on number line $\frac{8}{3}$, 1.3, -24, $\frac{23}{6}$
- 8) Find a rational number lying between (i) 0.75 and 1.2 (ii) $\frac{3}{4}$ and $\frac{2}{5}$
- 9) Insert six rational nos. between 3 and 4
- 10) Insert 16 rational nos. between 2.1 and 2.2
- 11) Express 0.999999..... 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. $\frac{7}{24}$, $\frac{16}{125}$
- 14) Write three number having non terminating non repeating decimal
- 15) Find an irrational number between $\frac{1}{7}$ and $\frac{2}{7}$
- 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..... (ii) $\frac{2}{38.46}$ (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