



CHAPTER – 1 NUMBER SYSTEM CLASS IX ASSIGNMENT

- Q.1. Express $23.\overline{43}$ in the form of $\frac{p}{q}$.
- Q.2. Rationalise the denominator of $\frac{1}{7+3\sqrt{2}}$.
- Q.3. Evaluate $\sqrt{5 + 2\sqrt{6}} + \sqrt{7 - 2\sqrt{10}}$
- Q.4. If $\frac{9^n \times 3^{2m} \times (3^{-n/2})^2 - 27^n}{3^{3m} \times 2^3} = \frac{1}{27}$ prove that $m - n = 1$.
- Q.5. Prove that $\sqrt{2}$ is not a rational number.
- Q.6. Simplify $\frac{4}{2+\sqrt{3}+\sqrt{7}}$ by rationalizing the denominator.
- Q.7. Which is greater $\sqrt{2}$, $\sqrt[3]{4}$, $\sqrt[4]{3}$?
- Q.8. Find the value of $\sqrt{(81)^{-2}}$?
- Q.9. What is the value of $\sqrt{10} \times \sqrt{15}$
- Q.10. Evaluate : $\sqrt[4]{\sqrt[3]{2^2}}$
- Q.11. Find the value of $\left[\left(\frac{25}{36}\right)^{1/5}\right]^{-5/2}$
- Q.12. Locate $\sqrt{9.6}$ on number line.
- Q.13. Represent $\sqrt{7}$ on number line.
- Q.14. Simplify : $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$
- Q.15. Simplify : $\frac{1}{\sqrt{5}-\sqrt{6}-\sqrt{11}}$
- Q.16. If $a = 7 - 4\sqrt{3}$, find $\sqrt{a} + \frac{1}{\sqrt{a}}$
- Q.17. Represent $\sqrt{9.3}$ on the number line.
- Q.18. Simplify $\sqrt[3]{16} + \sqrt[3]{54} + \sqrt[3]{192} - \sqrt[3]{375}$
- Q.19. Find the continued product of $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$ ($a = b$) ($a^2 + b^2$)



Q.20. Express the following in the form of $\frac{p}{q}$.

a) $0.\overline{621}$ b) $3.\overline{14}$

Q.21. Give one example of two irrational number whose difference is a rational number and sum is irrational number.

Q.22. Express as mixed surd.

a) $\frac{1}{3} \times \sqrt{162}$ b) $\sqrt[4]{1875}$

Q.23. Simplify :

a) $3^3\sqrt{32} \times 3^3\sqrt{4}$ b) $\sqrt{a^3b^4} \times \sqrt{a^6b^3}$

Q.24. Express in the simplest form.

a) $\sqrt[3]{\frac{27}{a^5b^6c^4}}$ b) $\sqrt[3]{-108a^4b^3}$

Q.25. After rationalising the denominator of $\frac{7}{3\sqrt{3}-2\sqrt{2}}$, What denominator do we get?

Q.26. Simplify : $\frac{7+3\sqrt{5}}{3+\sqrt{5}} + \frac{7-3\sqrt{5}}{3-\sqrt{5}}$

Q.27. Simplify : $\left[\frac{5^{-1} \times 7^2}{5^2 \times 7^{-4}}\right]^{7/2} \times \left[\frac{5^{-2} \times 7^3}{5^3 \times 7^{-5}}\right]^{-5/2}$

Q.28. Find the values of a and b if $\frac{2\sqrt{6}-\sqrt{5}}{3\sqrt{5}-2\sqrt{6}} = a + b\sqrt{30}$

Q.29. Express : $2.\overline{36} + 0.\overline{23}$ in form $\frac{p}{q}$ where $q \neq 0$.

Q.30. Simplify : $\frac{(a^2-b^2)+(b^2-c^2)+(c^2-a^2)}{(a-b) + (b-c) + (c-a)}$.

Q.31. If $a = 5 + 2\sqrt{6}$ and $b = \frac{1}{a}$, then find the value of $a^2 + b^2$.

Q.32. If $x = \frac{\sqrt{p+2q} + \sqrt{p-2q}}{\sqrt{p+2q} - \sqrt{p-2q}}$ then show that $qx^2 - px + q = 0$.

Q.33. If $\sqrt{3} = 1.732$ and $\sqrt{2} = 1.414$ then find $\sqrt{\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}}$.

Q.34. If $x = \frac{1}{2+\sqrt{3}}$, find the value of $2x^3 - 7x^2 - 2x + 1$.



Q.35. Simplify the following expression $\frac{2\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \frac{6\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{8\sqrt{3}}{\sqrt{6}+\sqrt{2}}$

Q.36. Simplify : $2\sqrt[3]{4} + 7\sqrt[3]{32} - \sqrt[3]{500}$

Q.37. Simplify : $7\sqrt{6} - \sqrt{252} - \sqrt{294} + 6\sqrt{7}$

Q.38. Simplify : $\frac{6-4\sqrt{2}}{6+4\sqrt{2}}$

Q.39. Give that $\sqrt{3} = 1.732$ find the value of $\sqrt{75} + \frac{1}{2}\sqrt{48} - \sqrt{192}$

Q.40. Determine a and b if $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a + 7\sqrt{5}b$

Q.41. If $x = 9 + 4\sqrt{5}$ find the value of $\sqrt{x} = -\frac{1}{\sqrt{x}}$

Q.42. If $x + \frac{1}{x} = \sqrt{3}$ find the value of $x^3 + \frac{1}{x^3}$

Q.43. Simplify : $\frac{1+\sqrt{2}}{\sqrt{5}+\sqrt{3}} + \frac{1-\sqrt{2}}{\sqrt{5}-\sqrt{3}}$

Q.44. Simplify and express the result in simplest form $\frac{\sqrt{x^2-y^2}+x}{\sqrt{x^2+y^2}+y} + \frac{\sqrt{x^2+y^2}-y}{x-\sqrt{x^2-y^2}}$

Q.45. If $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ find the value of $x^2 + y^2 + xy$.

Q.46. If $x = \frac{\sqrt{p+q}+\sqrt{p-q}}{\sqrt{p+q}-\sqrt{p-q}}$ find the value of $x^2 - px + q$.

Q.47. Simplify : $\frac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$

Q.48. Simplify : $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}} - \frac{2\sqrt{3}}{\sqrt{6}+\sqrt{2}} - \frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}$

Q.49. Find : $\left(\frac{3}{4}\right)^6 \times \left(\frac{16}{9}\right)^5 = \left(\frac{3}{4}\right)^{x+2}$

Q.50. If $a = \sqrt{2} + 1$ and $b = \frac{1}{a}$, find the value of $a^2 - b^2$.

Q.51. Express 0.357 in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

Q.52. If $4^{2x-1} - 16^{x-1} = 384$, find the value of x.

Q.53. Simplify : $128^{\frac{-2}{7}} - (625^{-3})^{\frac{-1}{4}} + 14(2401)^{\frac{-1}{4}}$

Q.54. Rationalise $\frac{1}{\sqrt{7}+\sqrt{3}-\sqrt{2}}$



Q.55. On her birthday Jayanti distributed chocolates in an orphanage the no. of chocolates she distributed is given by $(5 + \sqrt{11})(5 - \sqrt{11})$.

- Find the number of chocolates.
- Write the moral values depicted here by Jayanti?

Q.56. In the 'Cleanliness Drive' the residents of certain locality joined together to clean the neighbourhood area. The cleaned area is given by $(\sqrt{5} + \sqrt{2})^2$ sq. meter.

- Find the cleaned area.
- What values are depicted here?

Q.57. Two classmates Anya and Madhur simplified two different expressions during the revisions hour and explained to each other their simplifications. Anya explains simplifications of $\frac{\sqrt{2}}{\sqrt{5} + \sqrt{3}}$ and Madhur explains simplifications of $\sqrt{28} + \sqrt{98} + \sqrt{147}$. Write both simplifications. What values does it depict?

Q.58. In a school, 5 out of every 1 children participated in 'save wild life' campaign organized by the school authorities. What fraction of the students participated in the campaign. Find what kind of decimal expansions it has? What values do participating students possess?