

Class. IX Maths Chapter-1 Number Systems
Assignment-04 Part-a

Q.1- Express $3\frac{1}{8}$ in decimal form.

Q.2- Without actual division, find which of the following rational numbers are terminating decimals.

(i) $\frac{13}{80}$ (ii) $\frac{7}{24}$ (iii) $\frac{5}{12}$ (iv) $\frac{31}{375}$

Q.3- Express $2.\overline{93}$ and $32.12\overline{35}$ in the form $\frac{p}{q}$, where p, q are integers and $q \neq 0$

Q.4- Write $\frac{5}{13}$, $\frac{11}{24}$, $\frac{261}{400}$ & $2\frac{5}{12}$ in decimal form and say what kind of decimal expansion each has.

Q.5- Express $2.\overline{36} + 0.\overline{23}$ as a fraction in simplest form.

Q.6- Express in the form $\frac{p}{q}$: $0.\overline{38} + 1.\overline{27}$

Q.7- Find two rational and two irrational numbers between $\sqrt{2}$ and $\sqrt{3}$.

Q.8- Examine ~~whether~~ whether the following numbers are rational or irrational.

(i) $3 + \sqrt{3}$ (ii) $\sqrt{7} - 2$ (iii) $\sqrt[3]{5} \times \sqrt[3]{25}$

(iv) $\sqrt{7} \times \sqrt{343}$ (v) $\sqrt{\frac{13}{117}}$ (vi) $\sqrt{8} \times \sqrt{2}$

Q.9- Simplify $\sqrt{72}$

$$5\sqrt{72} + 3\sqrt{288} - 2\sqrt{648}$$

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Q.10. Simplify $\frac{2\sqrt{30}}{\sqrt{6}} - \frac{3\sqrt{140}}{\sqrt{28}} + \frac{\sqrt{55}}{\sqrt{99}}$

Q.11. Represent $\sqrt{7}$ on the real line.

Q.12. Using successive magnification, locate 3.895 on the number line.

Q.13. Represent $1 + \sqrt{9.5}$ on the number line.

Q.14. Simplify by rationalising the denominator.

$$\frac{6 - 4\sqrt{3}}{6 + 4\sqrt{3}} \& \frac{2\sqrt{6}}{\sqrt{2} + \sqrt{3}} + \frac{6\sqrt{2}}{\sqrt{6} + \sqrt{3}} - \frac{8\sqrt{3}}{\sqrt{6} + \sqrt{2}}$$

Q.15. Find the value of $\frac{1}{\sqrt{3} - \sqrt{2} - 1}$ correct to 3

places of decimal. Given $\sqrt{2} = 1.414$ & $\sqrt{6} = 2.449$

Q.16. If $x = \frac{5 - \sqrt{21}}{2}$, prove that

$$\left(x^3 + \frac{1}{x^3}\right) - 5 \left(x^2 + \frac{1}{x^2}\right) + \left(x + \frac{1}{x}\right) = 0$$

Q.17. If $a = 2$, $b = 3$, find the value of

$$(i) (a^b + b^a)^{-1} \quad (ii) (a^a + b^b)^{-1}$$

Q.18. Write $\sqrt{6}$, $\sqrt[3]{7}$, $\sqrt[4]{8}$ in ascending order of magnitude.

$$Q.19. \text{ If } \frac{9^m \times 3^2 \times \left(3^{-\frac{n}{2}}\right)^{-2}}{3^{3m} \times 2^3} = \frac{1}{27}$$

prove that $m - n = 1$

Q.20. $\sqrt[5]{5x+2} = 2$, find the value of x .