

Number System Worksheet for Class 9

Name: _____ Class/Sec.: _____ Date: _____ Marks: 30

Instructions: Attempt all questions. Show necessary steps.

A. Fill in the blanks.

1. The decimal expansion of a rational number is either _____ or _____.
2. Every integer is a _____ number.
3. $\sqrt{2}$ is a/an _____ number.
4. Between any two rational numbers, there are _____ rational numbers.
5. The rationalising factor of $\sqrt{5}$ is _____.

B. State True or False.

6. Every irrational number is a real number. _____
7. The sum of two irrational numbers is always irrational. _____
8. 0 is a rational number. _____
9. $\sqrt{49}$ is irrational. _____
10. Every real number is either rational or irrational. _____

C. Choose the correct answer.

11. Which of the following is irrational? (a) $\frac{3}{7}$ (b) 0.25 (c) $\sqrt{3}$ (d) $\sqrt{81}$
12. The decimal expansion of $\frac{13}{40}$ is: (a) terminating (b) non-terminating recurring
(c) non-terminating non-recurring (d) none
13. Which lies between $\sqrt{2}$ and $\sqrt{3}$? (a) 1.2 (b) 1.5 (c) 1.8 (d) 2
14. Which is equal to 2^{-3} ? (a) 8 (b) -8 (c) $\frac{1}{8}$ (d) $-\frac{1}{8}$

D. Answer briefly.

15. Express 0.375 in the form $\frac{p}{q}$.
16. Write three rational numbers between $\frac{2}{5}$ and $\frac{3}{5}$.
17. Simplify: $\sqrt{50} + \sqrt{18} - \sqrt{8}$.
18. Rationalise: $\frac{1}{(\sqrt{3} + \sqrt{2})}$.
19. Simplify: $(2 + \sqrt{3})(2 - \sqrt{3})$.
20. Find the value of: $(3\sqrt{2} + 2\sqrt{3})^2$.

E. Solve.

21. Represent $\sqrt{5}$ on the number line.
22. Without actual division, determine whether $17/160$ has a terminating decimal expansion. Give reason.
23. Simplify using laws of exponents:
 $(2^3 \times 2^{-5}) \div 2^{-4}$
24. If $x = \sqrt{3} + \sqrt{2}$, find x^2 .
25. Prove that $\sqrt{5}$ is irrational.

F.

26. Find two irrational numbers whose sum is rational. Give an example and verify it.