

Home Assignment-1 (Multiple Choice Questions)

1. Which of the following is true?
 - A. Every whole number is a natural number
 - B. Every integer is a rational number
 - C. Every rational number is an integer
 - D. Every integer is a whole number
2. For positive real numbers a and b
 - A. $\sqrt{ab} = \sqrt{a} \sqrt{b}$
 - B. $(a + \sqrt{b})(a - \sqrt{b}) = a^2 - b$
 - C. $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
 - D. $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b}) = a + b$
3. Out of the following, the irrational number is
 - A. $1.\bar{5}$
 - B. $1.2\bar{77}$
 - C. π
 - D. $2.\bar{477}$
4. To rationalise the denominator of $\frac{1}{\sqrt{a+b}}$, we multiply it by
 - A. $\frac{1}{\sqrt{a+b}}$
 - B. $\frac{\sqrt{a-b}}{\sqrt{a-b}}$
 - C. $\frac{1}{\sqrt{a+b}}$
 - D. $\frac{\sqrt{a+b}}{\sqrt{a+b}}$
5. The number of rational numbers between $\sqrt{3}$ and $\sqrt{5}$ is
 - A. One
 - B. 3
 - C. None
 - D. Infinitely many
6. If we add two irrational numbers, the resulting number
 - A. is always an irrational number
 - B. is always a rational number
 - C. may be a rational or an irrational number
 - D. always an integer
7. The rationalising factor of $7-2\sqrt{3}$ is
 - A. $7+2\sqrt{3}$
 - B. $7-2\sqrt{3}$
 - C. $4+2\sqrt{3}$
 - D. $5+2\sqrt{3}$
8. If $\frac{1}{7} = 0.\overline{142857}$, then $\frac{4}{7}$ equals
 - A. $0.\overline{428571}$
 - B. $0.\overline{285718}$
 - C. $0.\overline{857142}$
 - D. $0.\overline{571428}$
9. The value of n for which $\sqrt{n}$ be a rational number is
 - A. 2
 - B. 4
 - C. 3
 - D. 5



6. If $x = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $y = \frac{\sqrt{2}-1}{\sqrt{2}+1}$, find the value of $x^2 + y^2 + xy$
7. If $\frac{5+2\sqrt{3}}{7+\sqrt{3}} = a - \sqrt{3}b$, find a and b where a and b are rational numbers.
8. Evaluate:
- $$\frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{\sqrt{4}+\sqrt{3}} + \dots + \frac{1}{\sqrt{9}+\sqrt{8}}$$
9. If $x = \frac{1}{2+\sqrt{3}}$, find the value of $2x^3 - 7x^2 - 2x + 1$
10. If $\sqrt{2} = 1.414$ and $\sqrt{5} = 2.236$, find the value of $\frac{\sqrt{10}-\sqrt{5}}{2\sqrt{2}}$ upto three places of decimals

Task-4: Hands on activity

Topic	Number System
Nature of task	Content
Content Coverage	Representation of irrational numbers
Learning Objectives	To learn to make a square root spiral using compass and ruler on a sheet of paper.
Task	Maths activity
Execution of task	An instruction sheet containing pictures of initial steps can be given to students for reference. They will be then asked to complete the square root spiral and interpret the figure obtained.
Duration	1 period
Criteria for assessment	This activity will be a part of Maths activity , so it will be assessed according to the following given parameters: Class Ethics Performance of activity File Record (marks may be allotted by the teacher accordingly)
Follow up	—

