

One-to-One Correspondence of Real Numbers & The Real Number Line

Instructions: Read each question carefully. This assessment evaluates your conceptual understanding of how real numbers correspond to unique points on the real number line. Answer all questions in full.

Question 1: Multiple Choice: Definition of One-to-One Correspondence

Which of the following best describes the principle of 'one-to-one correspondence' on the real number line?

- A. Every integer corresponds to exactly two distinct points on the number line.
- B. Every real number corresponds to exactly one unique point on the number line, and every point corresponds to exactly one real number.
- C. Only positive whole numbers and fractions have designated spots on the number line.
- D. Points on the line can represent multiple numbers depending on whether the line is horizontal or vertical.

Question 2: True or False with Explanation

Statement: 'The number line contains gaps because irrational numbers like π or $\sqrt{2}$ do not have exact physical points on the line.'

a) State whether the statement is TRUE or FALSE: _____

Question 3: Matching Conceptual Representation

Match each type of number in Column A with its correct description regarding its location on the real number line in Column B. Place the Correct Number next to the correct Description

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| 1. Rational Numbers (e.g., $-3/4$, 2.5) | ☐ A. The origin point that separates positive values from negative values. |
| 2. Irrational Numbers (e.g., $\sqrt{2}$, π) | ☐ B. Specific evenly spaced tick marks on a standard integer line. |
| 3. Integers (e.g., -5, 0, 8) | ☐ C. Expressible as ratios of integers, occupying precise exact points. |
| 4. Zero (0) | ☐ D. Infinite non-repeating decimals that still occupy unique, fixed points. |