

Mathematics — Ganita Manjari

Chapter 3 Test 8

The World of Numbers

Class IX | 2026-27

Time Allowed: 45 Minutes

Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Choose one option in A; show working in B-D.
2. Show the main steps and give reasons where asked. Calculators are not allowed.
3. Give fractions in lowest terms. Use exact values unless a decimal is requested.

SECTION A

(5 questions × 1 mark = 5 marks)

1. Zero is:

- (A) Positive
- (B) Neither positive nor negative
- (C) Negative
- (D) Both positive and negative

2. Which condition is NOT required for a fraction $\frac{p}{q}$ to represent a rational number?

- (A) p is an integer
- (B) q is an integer
- (C) p and q are co-prime
- (D) $q \neq 0$

3. There is no least positive rational number because, for every positive rational r :

- (A) $r + 1 < r$
- (B) $r - 1$ is always positive
- (C) $2r < r$
- (D) $0 < \frac{r}{2} < r$

4. Which inequality holds for every rational number x ?

- (A) $|x| \geq 0$
- (B) $|x| < 0$
- (C) $|x| > 0$
- (D) $|x| = x$

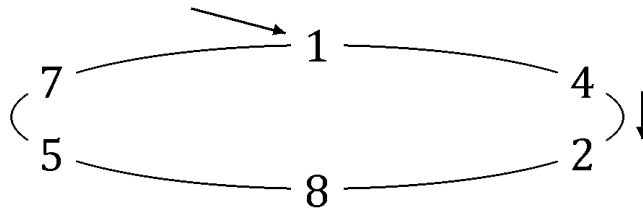
5. Which is a mixed repeating decimal, with at least one initial non-repeating digit?

- (A) 0.333333 ...
- (B) 0.125555 ...
- (C) 0.121212 ...
- (D) 0.125

SECTION B

(4 questions × 2 marks = 8 marks)

6. Read the six digits clockwise from the arrow. Multiply the resulting number by 2 and by 3. Show how each product can be read from the same ring.



7. Evaluate:

$$\left| -\frac{2}{7} - \frac{3}{14} \right|.$$

8. Simplify:

$$\frac{3}{4} + \frac{5}{6} - \frac{7}{12}.$$

9. Express -0.08 as a fraction in lowest terms. Write its additive inverse, also as a reduced fraction.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Using the irrationality of $\sqrt{2}$, prove that $3 + \sqrt{2}$ is irrational.

11. Convert $1.2454545 \dots$ into a fraction in lowest terms. After the initial decimal digit 2, the block 45 repeats.

12. Explain why the division for $\frac{1}{11}$ must eventually repeat. Why can its repeating block have no more than 10 digits?

SECTION D

(1 application question × 3 marks = 3 marks)

13. A trader begins with a debt of Rs 480, receives Rs 825 and then pays Rs 390. Find the final signed balance, interpret it, and state the smallest extra receipt needed to remove any debt.