

Mathematics — Ganita Manjari

Chapter 2 Test 8

Introduction to Linear Polynomials

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. Read graph scales carefully and state units where appropriate.

SECTION A

(5 questions × 1 mark = 5 marks)

1. For $p(t) = 0t^3 + 6t^2 - t + 4$, the degree is:

- (A) 3 (B) 2
(C) 1 (D) 0

2. The y-intercept of $y = 7x - 9$ is represented by:

- (A) $(-9, 0)$ (B) $(0, 7)$
(C) $(0, -9)$ (D) $(9, 0)$

3. Which rule represents a quantity that starts at 80 and increases by 12 per unit time?

- (A) $12 - 80t$
(B) $80 - 12t$
(C) $12 + 80t$
(D) $80 + 12t$

4. Which polynomial is zero at $x = \frac{1}{2}$?

- (A) $6x - 3$ (B) $6x + 3$
(C) $2x - 3$ (D) $3x - 6$

5. A straight-line graph rises 12 units when x increases by 4 units. Its slope is:

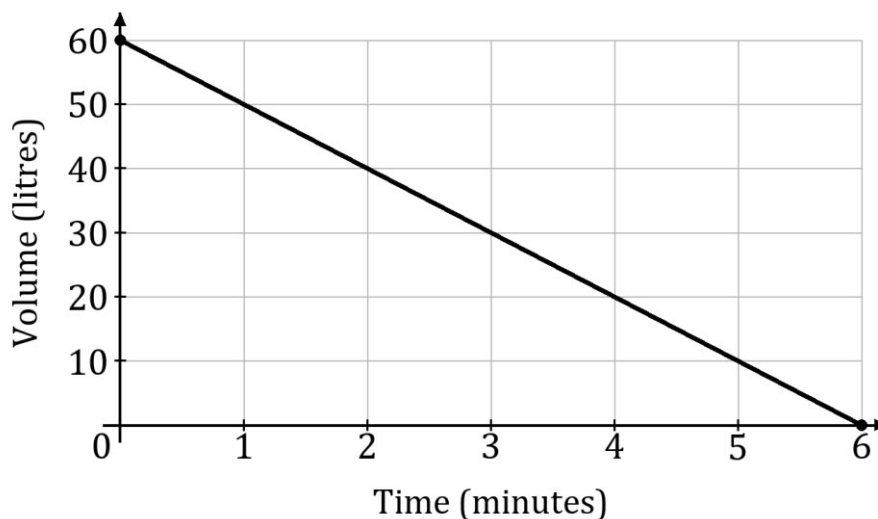
- (A) 4 (B) 3
(C) 12 (D) 48

SECTION B

(4 questions × 2 marks = 8 marks)

6. Classify $5 - 2x$, $x^2 + 4$ and $7x^3 - x$ as linear, quadratic or cubic. State their degrees.

7. The coefficient of x in $(k - 3)x + 8$ is 5. Find k and evaluate the polynomial at $x = -1$.
8. A rectangle has length $3x + 2$ cm and width x cm. Form its perimeter polynomial and evaluate it at $x = 4$.
9. The graph shows the water left in a vessel. Write the volume V as a function of time t , and find when 20 litres remain.



SECTION C

(3 questions $\times$ 3 marks = 9 marks)

10. The Celsius-Fahrenheit rule is $F = \frac{9}{5}C + 32$. Find F at 25°C , find C when F is 14°F , and state how much F changes for a 5°C rise.
11. One positive number is four times another. If 15 is added to each, the larger becomes twice the smaller. Find the original numbers.
12. The line $y = -3x + 8$ is shifted downward by 5 units. Write the new equation, explain the slope, and find the new x-intercept.

SECTION D

(1 application question $\times$ 3 marks = 3 marks)

13. A novel has 360 pages. Asha has already read 48 pages and now reads 24 pages each day. Model the number of unread pages after d days. Find the number after 7 days and how many days she needs to finish.