Mathematics — Ganita Manjari

Chapter 13 Test 2

Two Variables, One Line

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. No calculators. Give exact answers unless an approximation is requested.
3. Read the scales on graphs carefully. Other diagrams are not necessarily to scale.

SECTION A

(5 questions × 1 mark = 5 marks)

1. What is the slope of $y = -3x + 8$?

(A) 3 (B) 8
(C) -3 (D) -8

2. A line moves 4 units right and 3 units down. Its slope is:

(A) $-\frac{3}{4}$ (B) $\frac{3}{4}$
(C) $-\frac{4}{3}$ (D) $\frac{4}{3}$

3. Where does $y = 5x - 4$ meet the y-axis?

(A) $(5,0)$ (B) $(-4,0)$
(C) $(0,5)$ (D) $(0,-4)$

4. Height in metres is plotted vertically against time in minutes. What are the slope's units?

(A) Metres
(B) Metres per minute
(C) Minutes per metre
(D) Square metres

5. Which equation cannot be written as $y = mx + d$ for real constants m, d?

(A) $x = -3$ (B) $y = -3$
(C) $2x + y = 4$ (D) $y = x$

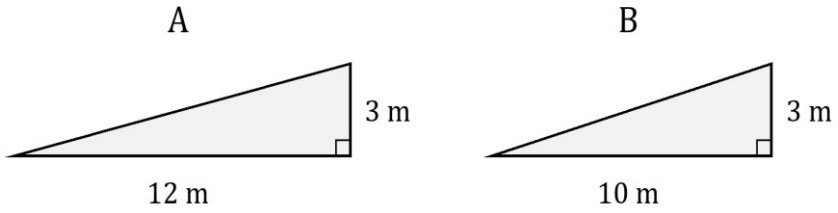
SECTION B

(4 questions × 2 marks = 8 marks)

6. Calculate the slope through $A(-3,4)$ and $B(1,-2)$ in both orders. Compare the results.

7. Rewrite $6x - 3y + 9 = 0$ in slope-intercept form. State its slope and explain what happens to y when x increases by 1.

8. Calculate the slopes of ramps A and B in figure. Which is steeper?



9. Find the equation of the line with slope -2 passing through $(3,1)$.

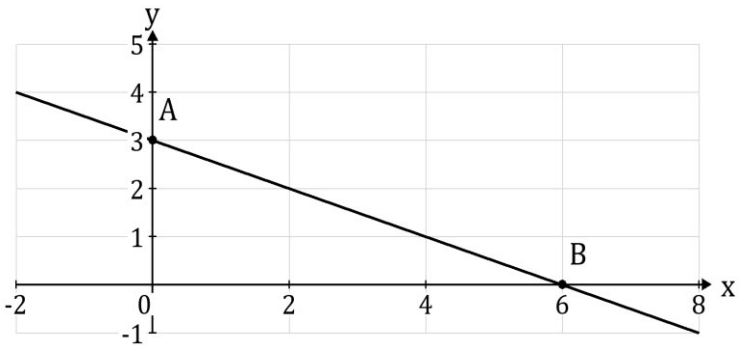
SECTION C

(3 questions × 3 marks = 9 marks)

10. For $y = \frac{3}{4}x - 2$, take two distinct x-values u and v. Show that rise divided by run is always $\frac{3}{4}$.

11. For points $(1, -2)$ and $(5,4)$, a student calculates slope as $\frac{5-1}{4-(-2)} = \frac{2}{3}$. Correct the error, then find the change in y for an increase of 10 in x.

12. For the line in figure, find its slope using coordinates. Explain why counting grid intervals gives the incorrect value -1. Find y when $x = 10$.



SECTION D

(1 application question × 3 marks = 3 marks)

13. A model ramp must have rise:run $= 1:8$. Its rise is 0.75 m.

(i) Find the required horizontal run.

(ii) Find the slope if a 5 m run is used.

(iii) How much must that run be extended to meet the ratio?