CLASS XI – MATHEMATICS (041)
CHAPTER 9 : STRAIGHT LINES
PRACTICE PAPER (SESSION 2026–27)

Maximum Marks: 40 **Time Allowed: 1½ Hours**

General Instructions:

Read the following instructions very carefully and strictly follow them:

1. This question paper contains 23 questions. All questions are compulsory.
2. This question paper is divided into five Sections – A, B, C, D and E.
3. In Section A, Questions 1 to 12 are Multiple Choice Questions (MCQs) and Questions 13 and 14 are Assertion–Reason based questions of 1 mark each.
4. In Section B, Questions 15 to 18 are Very Short Answer (VSA) type questions, carrying 2 marks each.
5. In Section C, Questions 19 to 21 are Short Answer (SA) type questions, carrying 3 marks each.
6. In Section D, Question 22 is a Long Answer (LA) type question, carrying 5 marks.
7. In Section E, Question 23 is a case study based question, carrying 4 marks.
8. There is no overall choice. However, an internal choice has been provided in 2 questions of Section B (Q17, Q18), 2 questions of Section C (Q20, Q21), in Q22 of Section D and in one sub-part of Q23 of Section E.
9. Draw neat and clean figures wherever required. Use of calculators is not allowed.

SECTION – A **(14 × 1 = 14)**

This section comprises of 12 multiple choice questions (Q1–Q12) and 2 assertion–reason based questions (Q13–Q14) of 1 mark each.

No.	Questions	Marks
Q1.	Fig. 1 shows a straight line L passing through the points P(–2, –1) and Q(4, 3). The slope of the line L is	**1**

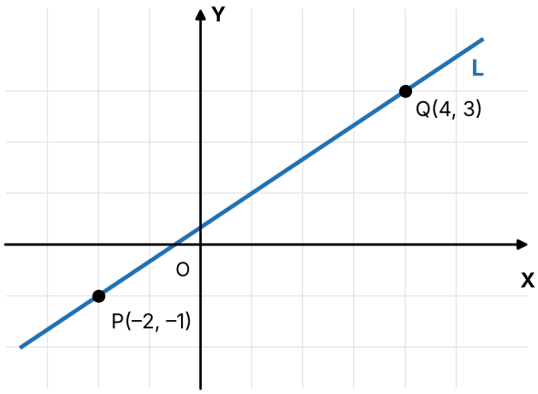


Fig. 1

(A) 3/2 (B) 2/3

(C) –2/3 (D) 4/3

Q2. Fig. 2 shows a line l whose inclination (the angle made with the positive direction of the x-axis, measured anticlockwise) is 120°. The slope of l is **1**

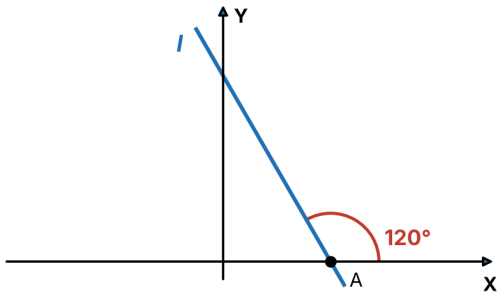


Fig. 2

(A) √3 (B) –1/√3

(C) –√3 (D) 1/√3

Q3. The slope of a line perpendicular to the line joining the points (2, –3) and (5, 3) is **1**

(A) 2 (B) 1/2

(C) –2 (D) –1/2

Q4. The equation of the line passing through the point (–1, 4) with slope –3 is **1**

(A) 3x + y – 1 = 0 (B) 3x – y + 7 = 0

(C) x + 3y – 11 = 0 (D) 3x + y + 1 = 0

Q5. The x-intercept and the y-intercept of the line 3x – 4y + 12 = 0 are respectively **1**

(A) 4 and 3 (B) –4 and 3

(C) –4 and –3 (D) 3 and –4

Q6. The distance of the origin from the line 5x + 12y – 26 = 0 is **1**

(A) 1 (B) 26

(C) 2 (D) 13

Q7. The distance between the parallel lines 6x + 8y – 5 = 0 and 3x + 4y + 10 = 0 is **1**

(A) 3/2 (B) 5

(C) 15/2 (D) 5/2

Q8. Fig. 3 shows a triangle ABC with vertices A(1, 1), B(7, 3) and C(3, 6). The area of the triangle is (in square units) **1**

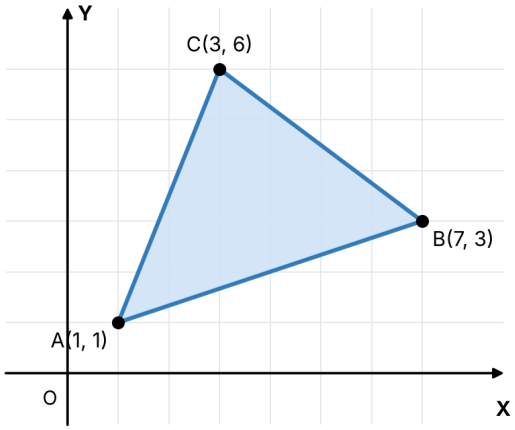


Fig. 3

(A) 12 (B) 13

(C) 26 (D) 14

Q9. The acute angle between the lines $2x - y + 1 = 0$ and $x - 3y + 5 = 0$ is **1**

(A) 45° (B) 30°

(C) 60° (D) 90°

Q10. The lines $kx + 3y - 7 = 0$ and $2x - 6y + 1 = 0$ are perpendicular to each other. The value of k is **1**

(A) –9 (B) 1/9

(C) 9 (D) 18

Q11. If the points (1, 2), (3, 4) and (k, 8) are collinear, then k is equal to **1**

(A) 7 (B) 6

(C) 8 (D) 5

Q12. The equation of the line which cuts off equal intercepts on the coordinate axes and passes through the point (2, 3) is **1**

(A) $x - y + 1 = 0$ (B) $2x + 3y = 12$

(C) $x + y + 5 = 0$ (D) $x + y - 5 = 0$

Assertion–Reason Based Questions

Directions: Question numbers 13 and 14 are Assertion and Reason based questions carrying 1 mark each. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the options (A), (B), (C) and (D) as given below:
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

Q13. **Assertion (A):** The lines $2x + 3y = 5$ and $6x + 9y = 1$ are parallel. **1**
Reason (R): Two non-vertical lines are parallel if and only if their slopes are negative reciprocals of each other.

Q14. **Assertion (A):** The perpendicular distance of the origin from the line $3x + 4y - 10 = 0$ is 2 units. **1**
Reason (R): The perpendicular distance of the point (x_1, y_1) from the line $Ax + By + C = 0$ is $|Ax_1 + By_1 + C| / \sqrt{(A^2 + B^2)}$.

SECTION – B (4 × 2 = 8)

This section comprises of 4 very short answer (VSA) type questions of 2 marks each.

Q15. Fig. 4 shows a line L which meets the x-axis at (4, 0) and the y-axis at (0, –3). **2**

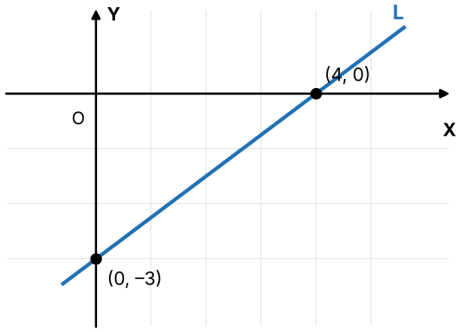


Fig. 4

(i) Write the intercepts made by L on the axes and hence find the equation of L in the form Ax + By + C = 0. **[1]**

(ii) Find the slope of L. **[1]**

Q16. Find the equation of the line passing through the points (–3, 5) and (1, –3). **2**

Q17. **(A)** Find the equation of the line passing through the point (4, –3) and parallel to the line 2x – 5y + 1 = 0. **2**

OR

(B) Find the equation of the line passing through the point (4, –3) and perpendicular to the line 2x – 5y + 1 = 0.

Q18. **(A)** Find the value of k if the line through the points (k, 3) and (4, 1) is perpendicular to the line 3x – 2y + 5 = 0. **2**

OR

(B) Find the equation of the line which passes through the point (0, –2) and whose inclination is 60°.

SECTION – C (3 × 3 = 9)

This section comprises of 3 short answer (SA) type questions of 3 marks each.

Q19. Fig. 5 shows a triangle ABC with vertices A(2, 6), B(1, 1) and C(7, 5). The perpendicular AD is drawn from A to the side BC. **3**

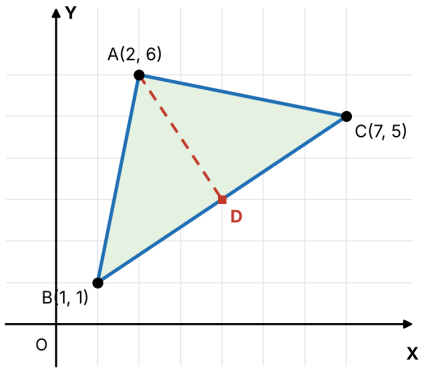


Fig. 5

(i) Find the slope of the side BC and the equation of the line BC. **[1]**

(ii) Find the equation of the altitude AD. **[1]**

(iii) Find the length of the altitude AD. **[1]**

Q20. **(A)** Find the equation of the line which passes through the point of intersection of the lines $2x + y - 5 = 0$ and $x - y - 1 = 0$ and is perpendicular to the line $3x - 4y + 7 = 0$. **3**

OR

(B) Find the coordinates of the foot of the perpendicular drawn from the point (3, 1) to the line $x + 2y - 10 = 0$.

Q21. **(A)** Find the equation of the line which passes through the point (4, 1) and makes an intercept on the x-axis that is twice its intercept on the y-axis. **3**

OR

(B) Find the value of k for which the lines $x + y - 3 = 0$, $2x - y = 0$ and $3x + ky - 11 = 0$ are concurrent.

SECTION – D (1 × 5 = 5)

This section comprises of 1 long answer (LA) type question of 5 marks.

Q22. **(A)** Find the equations of the lines passing through the point (–1, 2) and making an angle of 45° with the line $3x + y - 7 = 0$. **5**

OR

(B) (i) Find the image of the point P(3, 4) in the line $2x + y - 5 = 0$, treating the line as a plane mirror. **[3]** (ii) Find the foot of the perpendicular from P to the line and hence the distance between P and its image. **[2]**

SECTION – E (1 × 4 = 4)

This section comprises of 1 case study based question of 4 marks with sub-parts (i), (ii), (iii) of marks 1, 1, 2 respectively.

Q23. **Case Study:** A town is planned on a grid where 1 unit = 100 m. A straight road AB meets the axes at A and B as shown in Fig. 6. A school S is located at the point (7, 7). **4**

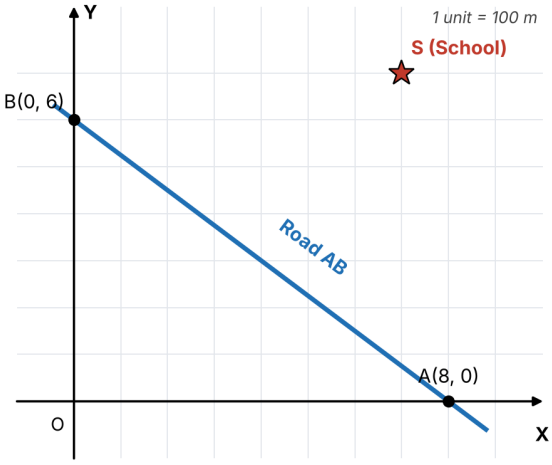


Fig. 6

Based on the given information, answer the following questions:

(i) Using the intercepts read from Fig. 6, find the equation of the road AB and its slope. **[1]**

(ii) Find the shortest distance of the school S from the road AB, in metres. **[1]**

(iii) **(a)** A new road is to be built through S parallel to AB. Find its equation and the distance between the two roads. **[2]**

OR

(b) A link road is to be built from S meeting AB at right angles. Find its equation and the coordinates of the point where it meets AB. **[2]**

— End of Question Paper —