Coordinates: Chapter Introduction

Two numbers pin any seat in an exam hall, and any point on a plane: coordinates turn geometry into numbers.

Name: Date: Score: ____ / 19

A. Fill in the blanks

1. The horizontal number line in the coordinate plane is the ____.

2. The axes meet at the ____, whose coordinates are (0, 0).

3. In (x, y), the first number tells the distance along the ____.

4. The axes divide the plane into four ____.

B. True or False

5. (3, 2) and (2, 3) are the same point. True / False

6. Every point on the y-axis has x-coordinate 0. True / False

7. (−2, −5) lies in quadrant III. True / False

8. A point in quadrant IV has a positive y-coordinate. True / False

C. Assertion and reason

9. Assertion (A): (5, 0) lies on the x-axis.
Reason (R): Its y-coordinate is zero.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

10. Assertion (A): (2, 3) and (3, 2) are different points.
Reason (R): Coordinates form an ordered pair.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

D. Choose the correct option

11. (−4, 3) lies in quadrant:

(a) I
(b) II
(c) III
(d) IV

Answer: _____

12. The point (0, −3) lies:

(a) on the x-axis
(b) on the y-axis
(c) in quadrant III
(d) in quadrant IV

Answer: _____

13. To plot (2, −3), from O go:

(a) 2 up, 3 right

(b) 2 right, 3 down

(c) 3 right, 2 down

(d) 2 left, 3 up

Answer: _____

14. The distance between (0, 0) and (6, 8) is:

(a) 10

(b) 14

(c) 48

(d) 7

Answer: _____

E. Numerical problems

15. Find the distance between (1, 1) and (4, 5).

16. Find the distance between (−2, 0) and (4, 0).

F. Short answer questions

17. Explain how to plot (−3, 2).

18. Why is "row 3, seat 5" like a coordinate?

G. Match the columns

19. Match each item in Column A with the correct item in Column B.

Column A	Column B	Your answer
1. (+, +)	(a) Quadrant III	1 → ____
2. (−, +)	(b) Quadrant I	2 → ____
3. (−, −)	(c) Quadrant II	3 → ____
4. (+, −)	(d) Quadrant IV	4 → ____

Detailed solutions

1. x-axis

2. origin

3. x-axis

4. quadrants

5. False. Order matters: (x, y) is an ordered pair.

6. True. It is zero steps along the x-axis.

7. True. Both coordinates are negative.

8. False. Quadrant IV is (+, −).

9. (a) R explains A.

10. (a) R explains A.

11. (b) II. x negative, y positive.

12. (b) on the y-axis. Its x-coordinate is 0.

13. (b) 2 right, 3 down. x first, then y.

14. (a) 10. $\sqrt{(36 + 64)} = 10$.

15. horizontal = 4 − 1 = 3; vertical = 5 − 1 = 4; distance = $\sqrt{(3^2 + 4^2)} = \sqrt{25}$. **Answer: 5 units**

16. both on the x-axis; distance = 4 − (−2). **Answer: 6 units**

17. Start at O, move 3 units left along the x-axis (x is negative), then 2 units up parallel to the y-axis. The point lies in quadrant II.

18. Two numbers measured along two fixed directions from a fixed start locate exactly one seat, just as (x, y) locates one point.

19. 1 → (b), 2 → (c), 3 → (a), 4 → (d). Each sign pattern matches its quadrant.