

Coordinate Geometry

Slope, midpoint, distance, and parallel or perpendicular reasoning on the plane.

Name _____ Date _____

32 main 2-up grid 2 pages

Completion Reward



Shown here as a small pack artifact, not a preview destination.

1. What is the slope of a horizontal line?

- A. 0
- B. 1
- C. undefined
- D. -1

2. What is the slope of a vertical line?

- A. undefined
- B. 0
- C. 1
- D. 2

3. What does a midpoint do to a segment?

- A. It doubles the segment length.
- B. It rotates the segment 90 degrees.
- C. It divides the segment into two equal parts.
- D. It always makes the segment vertical.

4. Which statement is true about parallel lines on the coordinate plane?

- A. They always cross at the origin.
- B. Their slopes multiply to -1.
- C. They must be horizontal.
- D. They have equal slopes.

5. Which statement is true about perpendicular non-vertical, non-horizontal lines?

- A. Their slopes are equal.
- B. Their y-intercepts are equal.
- C. Their slopes are negative reciprocals.
- D. Their distances from the origin are equal.

6. A line has slope $\frac{2}{3}$. What slope would a parallel line have?

- A. $-\frac{3}{2}$
- B. $-\frac{2}{3}$
- C. $\frac{3}{2}$
- D. $\frac{2}{3}$

7. A line has slope $\frac{2}{3}$. What slope would a perpendicular line have?

- A. $\frac{2}{3}$
- B. $-\frac{2}{3}$
- C. $-\frac{3}{2}$
- D. $\frac{3}{2}$

8. What is the slope of the line through (0, 0) and (3, 4)?

- A. $\frac{3}{4}$
- B. $\frac{4}{3}$
- C. $-\frac{4}{3}$
- D. 7

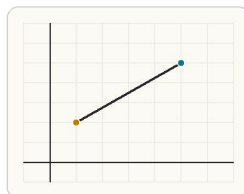
9. What is the midpoint of the segment with endpoints (2, 4) and (6, 8)?

- A. (8, 12)
- B. (4, 6)
- C. (3, 6)
- D. (4, 4)

10. What should you do first to find the midpoint of a segment on the coordinate plane?

- A. Average the x-coordinates and average the y-coordinates.
- B. Subtract the x-coordinates and subtract the y-coordinates.
- C. Multiply the coordinates together.
- D. Switch x and y in both points.

11. A student says the midpoint of (1, 2) and (5, 5) is (6, 7). What is the mistake?



The midpoint comes from averaging the x-values and averaging the y-values, not from adding the coordinates.

- A. They should have multiplied the coordinates.
- B. The midpoint should always be an integer.
- C. The midpoint formula only works for vertical segments.
- D. They added the coordinates instead of averaging them.

12. A student finds the slope from (1, 5) to (4, -1) and gets 2. What is the issue?

- A. The rise is negative, so the slope should be -2.
- B. The run should be negative, so the slope is $\frac{2}{3}$.
- C. The slope should be undefined.
- D. Slope cannot be found from coordinates.

13. A student says the midpoint of (2, 1) and (8, 9) is (5, 9). What went wrong?

- A. The midpoint should use subtraction only.
- B. The midpoint must have $x = 2$.
- C. The student averaged the x-coordinates but forgot to average the y-coordinates.
- D. Midpoints do not use coordinates.

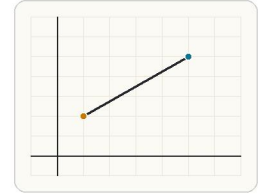
14. What is the distance between (2, 4) and (7, 4)? Answer with a number.

15. What is the distance between (-3, 2) and (5, 2)? Answer with a number.

16. What is the distance between (4, 2) and (4, -4)? Answer with a number.

17. What is the distance between (1, 2) and (1, 9)? Answer with a number.

18. What is the midpoint of the segment with endpoints (1, 2) and (5, 5)? Answer as an ordered pair.



Average the two x-values and the two y-values to find the point halfway between the endpoints.

19. If one line has slope $\frac{2}{3}$, which slope belongs to a perpendicular line?

- A. $\frac{2}{3}$
- B. $-\frac{3}{2}$
- C. $\frac{3}{2}$
- D. $-\frac{2}{3}$

20. If one line has slope -4, which slope belongs to a parallel line?

- A. 4
- B. $\frac{1}{4}$
- C. $-\frac{1}{4}$
- D. -4

21. Which pair of slopes belongs to perpendicular lines?

- A. $\frac{3}{2}$ and $\frac{3}{2}$
- B. $\frac{3}{2}$ and $\frac{2}{3}$
- C. $\frac{3}{2}$ and $-\frac{3}{2}$
- D. $\frac{3}{2}$ and $-\frac{2}{3}$

22. You need the point halfway between two coordinates. What should you do first?

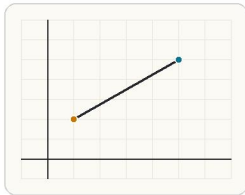
- A. Add the slopes of the segments.
- B. Average the x-values and y-values separately.
- C. Multiply both coordinates by 2.
- D. Find a circle formula.

23. A student says a line perpendicular to slope 2 has slope $\frac{1}{2}$. What is missing?

- A. Perpendicular lines keep the same slope.
- B. The slope should be 2.
- C. You should add the slopes instead of compare them.
- D. Perpendicular slopes must also change sign, so the slope should be $-\frac{1}{2}$.

24. What is the x-coordinate of the midpoint between (-2, 7) and (6, 1)? Answer with a number.

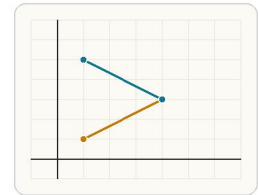
25. What is the slope of the segment from (1, 2) to (5, 5)? Answer with a number.



Use the change in y divided by the change in x between the two coordinates.

26. What is the distance between (2, 1) and (6, 4)? Answer with a number.

27. What is the slope of the segment from (1, 5) to (4, 3)? Answer with a number.



Slope reveals whether a segment rises or falls and allows comparisons for parallel or perpendicular relationships.

28. What is the slope of the line through (2, 1) and (6, 5)? Answer with a number.

29. What is the slope of the line through (1, 5) and (4, -1)? Answer with a number.

30. Which explanation best checks whether two segments are parallel on the coordinate plane?

- A. Find both slopes and compare them.
- B. Compare the x-values only.
- C. Compare the lengths only.
- D. See whether the segments use the same color.

31. Student A says the distance between (1, 1) and (4, 5) is 5. Student B says it is 7. Who is correct?

- A. Student B
- B. Student A
- C. Both students
- D. Neither student

32. What is the midpoint of (-3, 1) and (5, 7)? Answer as an ordered pair.