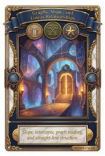
Graphs, Slope, and Linear Relationships

Slope, intercepts, graph reading, and straight-line structure.

Name _____ Date _____

32 main · 2-up grid · 3 pages

Completion Reward



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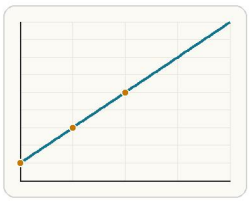
1. In a context, what does slope usually represent?



A straight line changes by the same vertical amount for each step right, so slope represents output change per unit of input.

A. How much the output changes for each unit of input
B. Where the graph crosses the x-axis
C. The largest value of the graph
D. A random point on the line

2. What is the y-intercept of y = -3x + 5?

A. -3
B. 0
C. 8
D. 5

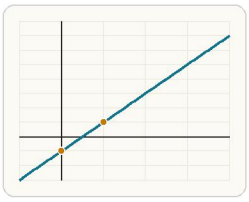
3. What does the y-intercept of a line represent?

A. The value of x when y = 0
B. The value of y when x = 0
C. The slope of the line
D. The highest point on the graph

4. In a study of hours studied and quiz score, which quantity is usually the dependent variable?

A. Quiz score
B. Hours studied
C. Both are always independent
D. Neither can depend on the other

5. Which equation has slope 2 and y-intercept -1?



This line crosses the y-axis at -1 and rises 2 units for every 1 unit to the right.

A. y = -x + 2
B. y = x - 2
C. y = -2x - 1
D. y = 2x - 1

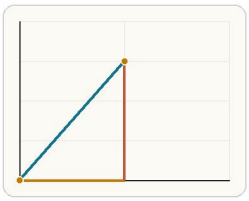
6. A line goes down as x increases, but a student says the slope is positive. What is wrong?

A. A decreasing line has no slope at all.
B. A decreasing line has a negative slope, not a positive slope.
C. Slope can only be positive on a graph with labels.
D. The slope must be 0 whenever y decreases.

7. A student says the y-intercept of y = 4x - 6 is 4. What is wrong?

A. The y-intercept must always be positive.
B. The slope and intercept are always the same number.
C. The equation should be rewritten before you can see an intercept.
D. The y-intercept is the constant term, so it is -6.

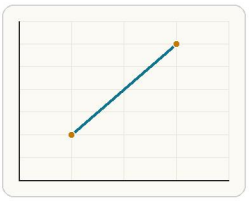
8. A student says slope is x/y instead of change in y over change in x. What is wrong?



Slope compares change in y to change in x between two points, not the raw coordinates of one point.

A. Slope compares vertical change to horizontal change, not x over y.
B. Slope should always be 1.
C. Slope only comes from tables.
D. Nothing is wrong.

9. Find the slope of the line segment shown on the grid. Answer with the slope only.



Read the vertical change and horizontal change from A to B, then form rise over run.

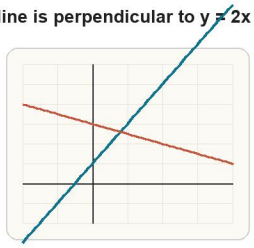
10. Which slope would make a line perpendicular to y = (1/2)x + 3?

A. 2
B. -2
C. 1/2
D. -1/2

11. Which ordered pair lies on the line y = -x + 4?

A. (1, 2)
B. (3, 1)
C. (2, 4)
D. (0, 5)

12. Which line is perpendicular to y = 2x + 1?



A line perpendicular to slope 2 must have slope -1/2, so the visual comparison is about direction and steepness together.

A. y = 2x - 5
B. y = 0.5x + 3
C. y = -0.5x + 3
D. y = -2x + 3

13. How would you describe the graphed line?

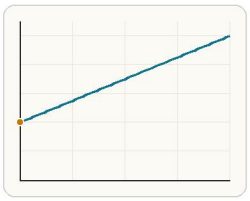
Use the way the line moves across the grid to describe its slope and intercept behavior.

A. Increasing
B. Horizontal
C. Vertical
D. Decreasing

14. Which equation has slope -3 and y-intercept 2?

A. y = 3x - 2
B. y = -3x + 2
C. y = -2x + 3
D. y = 2x - 3

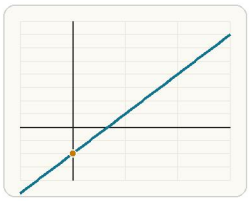
15. In y = 15x + 40 for a car rental, what does 40 represent?



In a context model, the y-intercept is the amount when x = 0, such as a starting fee before any usage is added.

A. The starting fee before any days are used
B. The cost per day
C. The number of days
D. The slope of the graph in a different unit

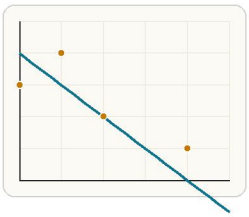
16. Which line is parallel to y = 3x - 2?



Parallel lines keep the same rate of change even when they cross the y-axis at different places.

A. y = 3x + 5
B. y = -3x + 1
C. y = x + 3
D. y = -x - 2

17. Which labeled point lies on the line y = -x + 4?



A plotted point belongs on the line only if its coordinates match the rule the line represents.

A. A
B. C
C. B
D. D

18. To find the slope through (-1, 4) and (3, 10), what should you compute first?

A. (3 - (-1))/(10 - 4)
B. (10 - 4)/(3 - (-1))
C. 10 + 4
D. 3 + (-1)

19. What is the best next step to rewrite 2x + y = 7 in slope-intercept form?

A. Divide both sides by 2.
B. Add y to both sides.
C. Subtract 2x from both sides.
D. Swap x and y.

20. What is the best next step to graph y = -2x + 3?

A. Plot the x-intercept at (3, 0) first because it is always given
B. Use slope 3 and intercept -2
C. Plot the y-intercept at (0, 3)
D. Start with any point because the equation does not matter

21. What is the x-intercept of y = x - 4?

A. -4
B. 4
C. 0
D. 8

22. **Find the slope of the line through (2, 5) and (6, 13). Answer with a number.**

23. **Which equation represents a line with slope 3 and y-intercept -4?**

A. y = 3x - 4
B. y = -3x - 4
C. y = 3x + 4
D. y = -4x + 3

24. **A table shows x-values 0, 2, 4 and y-values 5, 9, 13. Find the slope. Answer with a number.**

25. **Which equation is parallel to y = -3x + 1 and passes through (0, 5)?**

A. y = 3x + 5
B. y = -5x + 3
C. y = -3x - 5
D. y = -3x + 5

26. **Rewrite 2x + y = 8 in slope-intercept form. Answer as an equation in slope-intercept form.**

27. **A phone plan costs $20 plus $5 per gigabyte. What does the slope 5 mean in the model y = 5x + 20?**

A. The plan starts at $5
B. The total cost rises $5 for each gigabyte used
C. The intercept is 5 gigabytes
D. The cost drops $5 each gigabyte

28. **A taxi ride costs $18 to start and $2 per mile. Which equation models the total cost y after x miles?**

A. y = 18x + 2
B. y = 2x + 18
C. y = 16x
D. y = 20x

29. **A car rental charges $40 plus $15 per day. Write the total cost y after x days. Answer in the form y = ...**

30. **Which equation matches the line through (0, 2) and (3, 8)?**

A. y = 2x + 2
B. y = 3x + 2
C. y = 2x + 8
D. y = x + 2

31. **Which equation represents the line through (2, 1) and (4, 5)?**

A. y = 2x + 3
B. y = 2x - 3
C. y = x - 1
D. y = -2x + 5

32. **Which equation is perpendicular to y = (1/2)x - 1 and passes through (1, 2)?**

A. y = -2x + 4
B. y = 2x + 4
C. y = -1/2x + 2
D. y = -2x + 1