Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Slope from Tables and Graphs

Slope from Tables and Graphs | A1-U05-P03

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for an exact slope, missing datum, comparison, or justified linearity conclusion.

8 PDFs and a README; 87 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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Algebra 1

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Name: _____ **Date:** _____ **Class:** _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

The graphs show the same square angle but use different horizontal units. Graph A: 4 squares right, 2 squares up; each horizontal square is $1x$-units and each vertical square is $1y$-units. Graph B: 4 squares right, 2 squares up; each horizontal square is $2x$-units and each vertical square is $1y$-units. Compare their signed coordinate slopes.

Bank label: _____

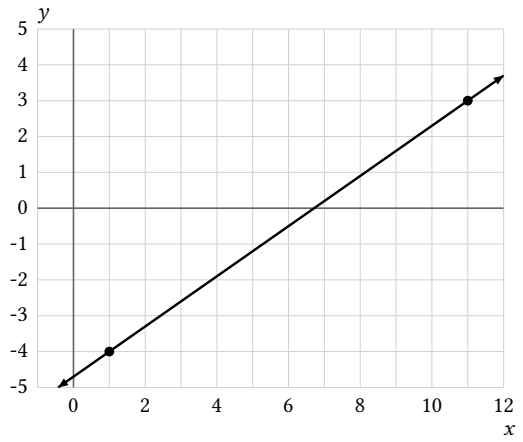
An interior output must share the common rate. The table $x = -3, y = 2$; $x = 1, y =?$; $x = 5, y = 10$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
−3	2
1	_____
5	10

Bank label: _____

An exact line graph marks the points $x = 1, y = -4$; $x = 11, y = 3$. Determine its slope.



Bank label: _____

An input cell must be recovered from its output. The table $x = 2, y = 0$; $x =?$, $y = 8$; $x = 8, y = 12$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
2	0
_____	8
8	12

Bank label: _____

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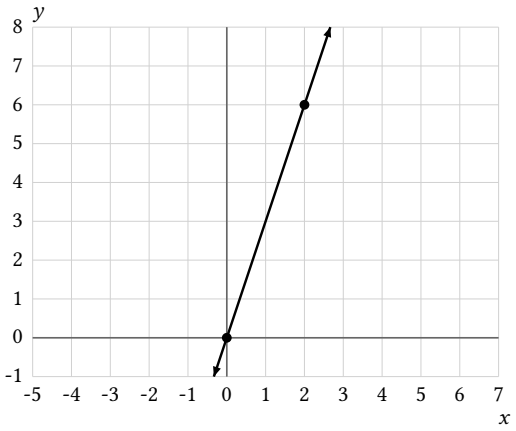
Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

An exact line graph marks the points $x = 0, y = 0$; $x = 2, y = 6$. Determine its slope.

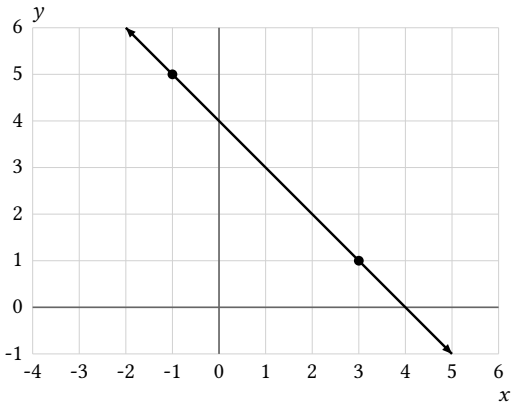


A middle output cell is blank. The table $x = 0, y = 2$; $x = 2, y =$?; $x = 4, y = 10$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
0	2
2	_____
4	10

On a coordinate graph, the line passes through $x = -1, y = 5$; $x = 3, y = 1$. Read the rise and run from left to right and find m.



Does the table $x = 0, y = 1$; $x = 1, y = 3$; $x = 2, y = 5$; $x = 3, y = 7$ have a constant slope? Support the decision with interval rates.

Input x	Output y
0	1
1	3
2	5
3	7

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Name: _____ **Date:** _____ **Class:** _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: The missing value in x = $-\frac{5}{2}, y = -1$; $x =$?, $y = 2$; $x = \frac{7}{2}, y = 5$ is $x = \frac{1}{2}$.

The output pattern uses noninteger values. The table $x = 0, y = \frac{2}{3}$; $x = 3, y =$?; $x = 9, y = \frac{20}{3}$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
0	$\frac{2}{3}$
3	_____
9	$\frac{20}{3}$

Your response: _____

Incoming: The missing value in x = 0, $y = \frac{2}{3}$; $x = 3, y =$?; $x = 9, y = \frac{20}{3}$ is $y = \frac{8}{3}$.

A visually flat segment competes with a steep scaled segment. Graph A: 8 squares right, 2 squares up; each horizontal square is $3x$-units and each vertical square is $1y$-units. Graph *B*: 2 squares right, 8 squares up; each horizontal square is $1x$-units and each vertical square is $\frac{1}{4}y$-units. Compare their signed coordinate slopes.

Your response: _____

Incoming: On x = 0 to $x = 6$, the requested slope is 1, but one global slope is not justified; adjacent average rates are $3, 0, -3$.

A fractional input must be reconstructed exactly. The table $x = -\frac{5}{2}, y = -1$; $x =$?, $y = 2$; $x = \frac{7}{2}, y = 5$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
$-\frac{5}{2}$	-1
_____	2
$\frac{7}{2}$	5

Your response: _____

Incoming: The slope is $-\frac{3}{5}$; the coordinate rise is 6 and the coordinate run is -10.

This table is declared linear: $x = 2, y = -8$; $x = 8, y = -4$; $x = 17, y = 2$. Determine its common slope.

The table is declared linear.

Input x	Output y
2	-8
8	-4
17	2

Your response: _____

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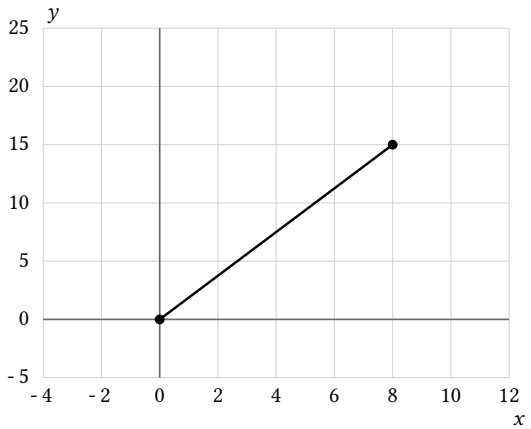
Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

A student reads the table $x = 0, y = 2$; $x = 3, y = 8$ and calls the slope 6. Diagnose the answer.

slope is 6

Input x	Output y
0	2
3	8

A graph moves 4 squares right and 3 up; x-squares represent 2 units and y-squares 5 units. A student reports $\frac{3}{4}$. Audit the scale use.



Slope from Tables and Graphs

Full Worked Solutions - excerpt

Worked example

Problem. The graphs show the same square angle but use different horizontal units. Graph A: 4 squares right, 2 squares up; each horizontal square is $1x$-units and each vertical square is $1y$-units. Graph B: 4 squares right, 2 squares up; each horizontal square is $2x$-units and each vertical square is $1y$-units. Compare their signed coordinate slopes.

Answer. Graph A has slope $\frac{1}{2}$ and graph B has slope $\frac{1}{4}$; A's signed slope is greater than B's.

Explanation and check.

The graphs show the same square angle but use different horizontal units. After applying both axis scales, compare $\frac{1}{2}$ and $\frac{1}{4}$.

Worked example

Problem. An interior output must share the common rate. The table $x = -3, y = 2$; $x = 1, y = ?$; $x = 5, y = 10$ is declared linear. Determine the missing entry, or explain why no valid unique entry follows.

The table is declared linear.

Input x	Output y
-3	2
1	_____
5	10

Answer. The missing value in x = $-3, y = 2$; $x = 1, y = ?$; $x = 5, y = 10$ is $y = 6$.

Explanation and check.

An interior output must share the common rate. Known complete rows give slope 1, and propagating that rate yields 6.