MATHEMATICS · GRADES 7-9

Calculating Slope from Two Points

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you work out how steep something is from two measurements. How fast a car was going between two checkpoints, or how quickly a hill rises, are both slopes. One number tells you the rate of change, so you can compare two hills or two journeys and say which one is steeper or faster.



Rule

Slope: change in y divided by change in x.

The slope of a line through two points is the rise divided by the run, slope = $\frac{(y_2 - y_1)}{(x_2 - x_1)}$. It tells you how steep the line is and how fast one quantity changes with the other.

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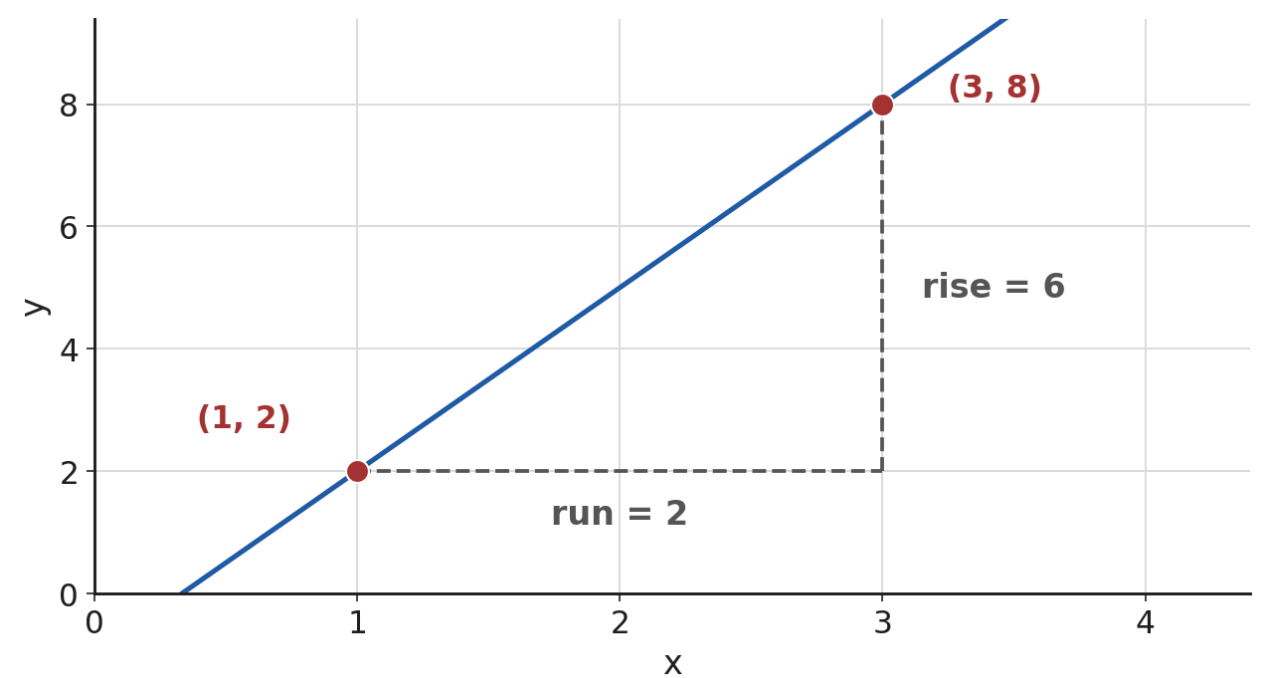
Worked examples

EXAMPLE 1

Q Find the slope through (1, 2) and (3, 8)



SOLUTION

Change in y: 8 - 2 = 6

Change in x: 3 - 1 = 2

Slope = $\frac{6}{2}$ = 3

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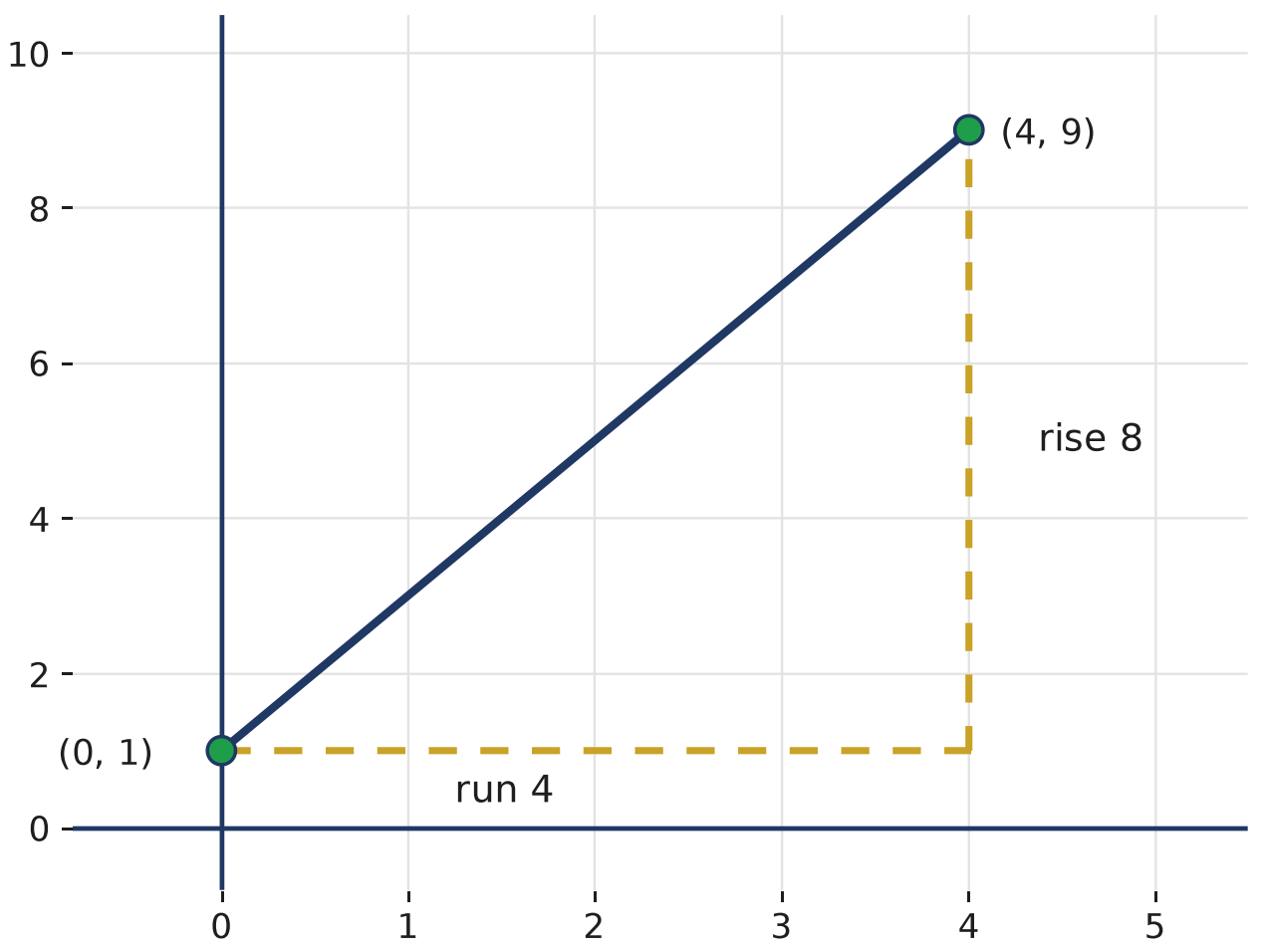
EXAMPLE 2

Q Find the slope through (0, 1) and (4, 9)



SOLUTION

Change in y: 9 - 1 = 8

Change in x: 4 - 0 = 4

Slope = $\frac{8}{4}$ = 2

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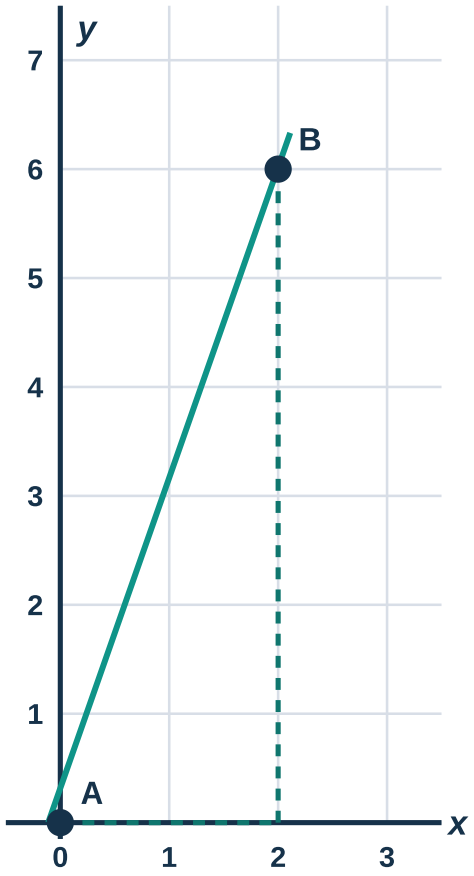
Practice questions

1 A line climbs across the grid through points A and B. Read the coordinates of A and B from the grid, then find the slope of the line.



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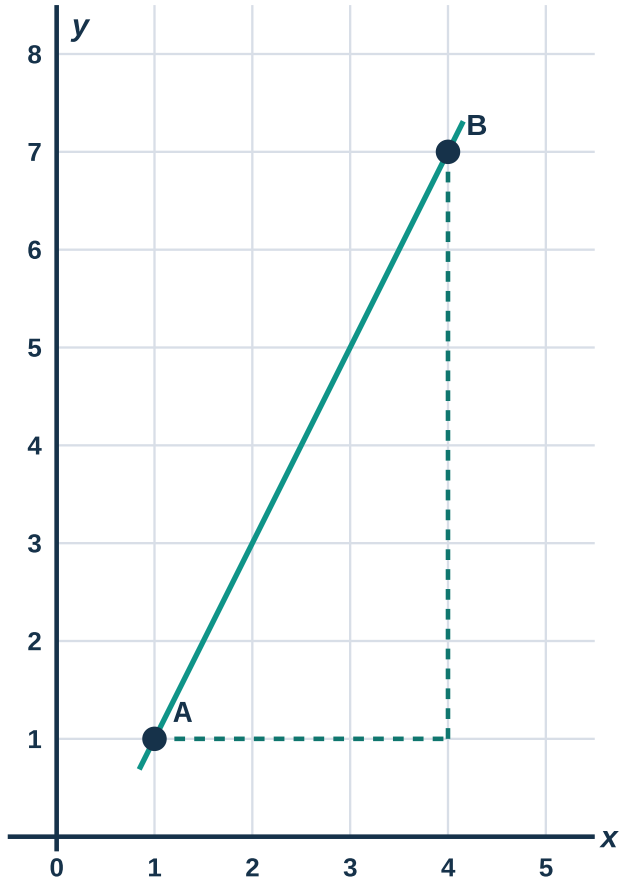
2 The grid shows a ramp as a line through points A and B. Work out the slope of the ramp from the coordinates of A and B, read from the grid.



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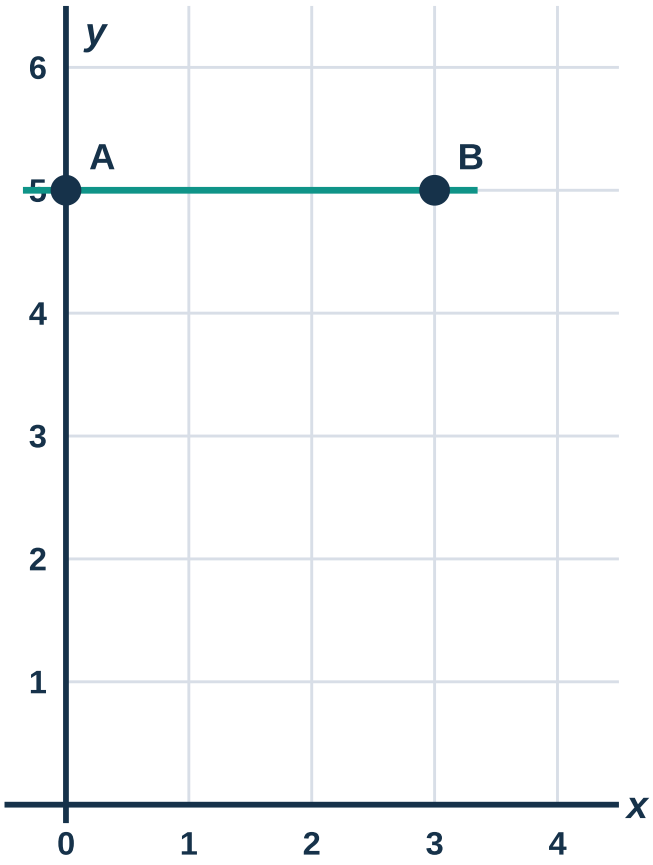
3 **A flat path runs across the grid through points A and B. Read their coordinates from the grid, then find the slope of the path.**



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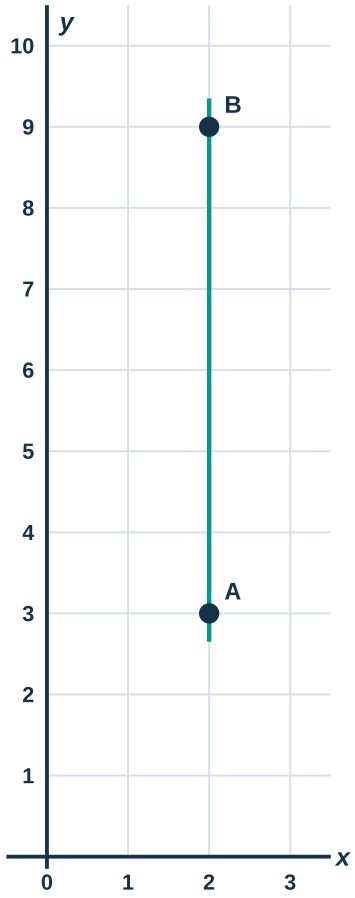
4 A vertical wall is drawn on the grid as a line through points A and B. Read the coordinates of A and B from the grid. What is the slope of the wall?



A 0

B Undefined

C 1

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D 3

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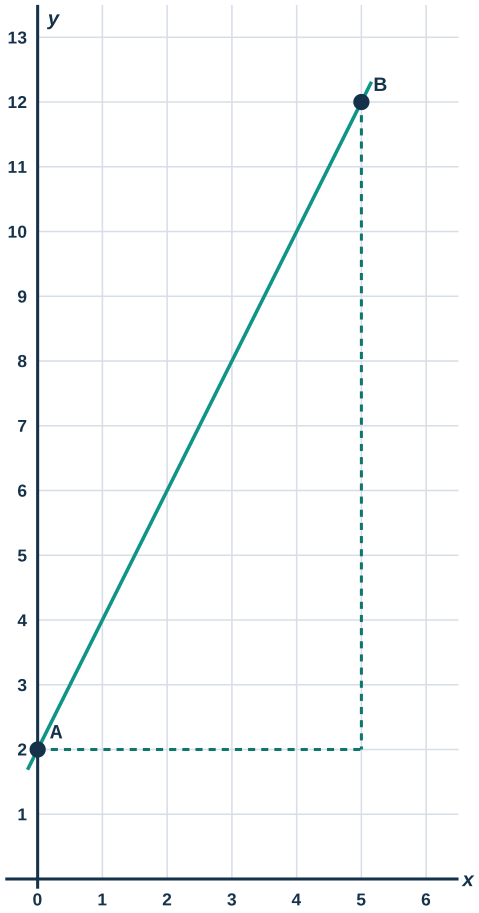
5 The grid shows a hillside as a line through points A and B. Work out the slope of the hillside from the coordinates of A and B, read from the grid.



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6 **A hill rises 12 m over a horizontal distance of 4 m. What is the slope of the hill?**

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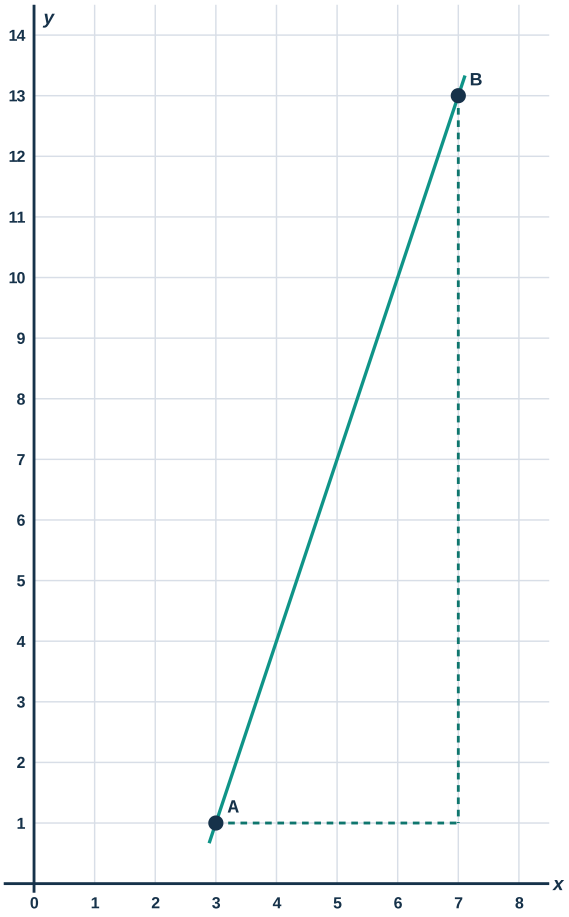
7 A ski slope is drawn on the grid as a line through points A and B. Read the coordinates of A and B from the grid, then find the slope of the ski slope.



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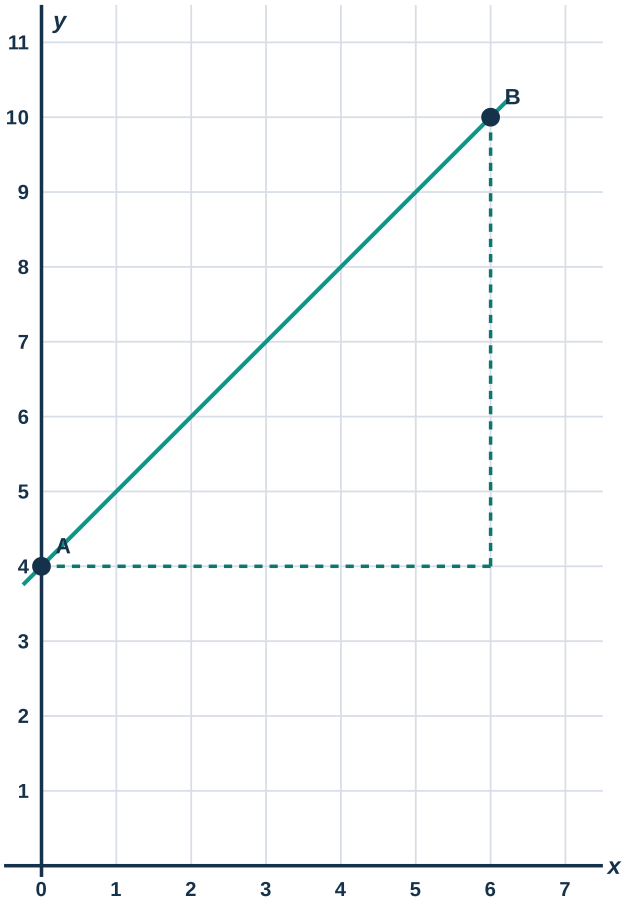
8 A road climbs across the grid as a line through points A and B. Read the coordinates of A and B from the grid, then find the slope of the road.



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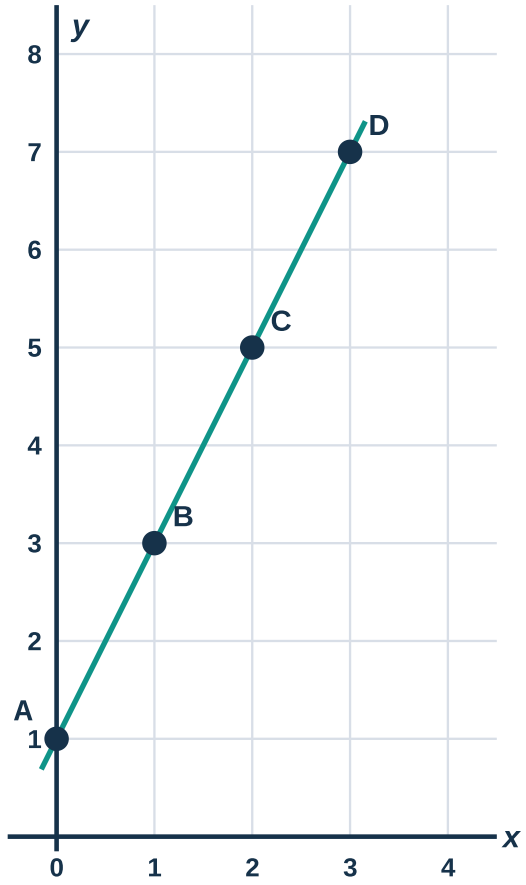
9 Four points A, B, C and D sit on one line on the grid. Read the coordinates of A and B from the grid, then find the slope of the line.



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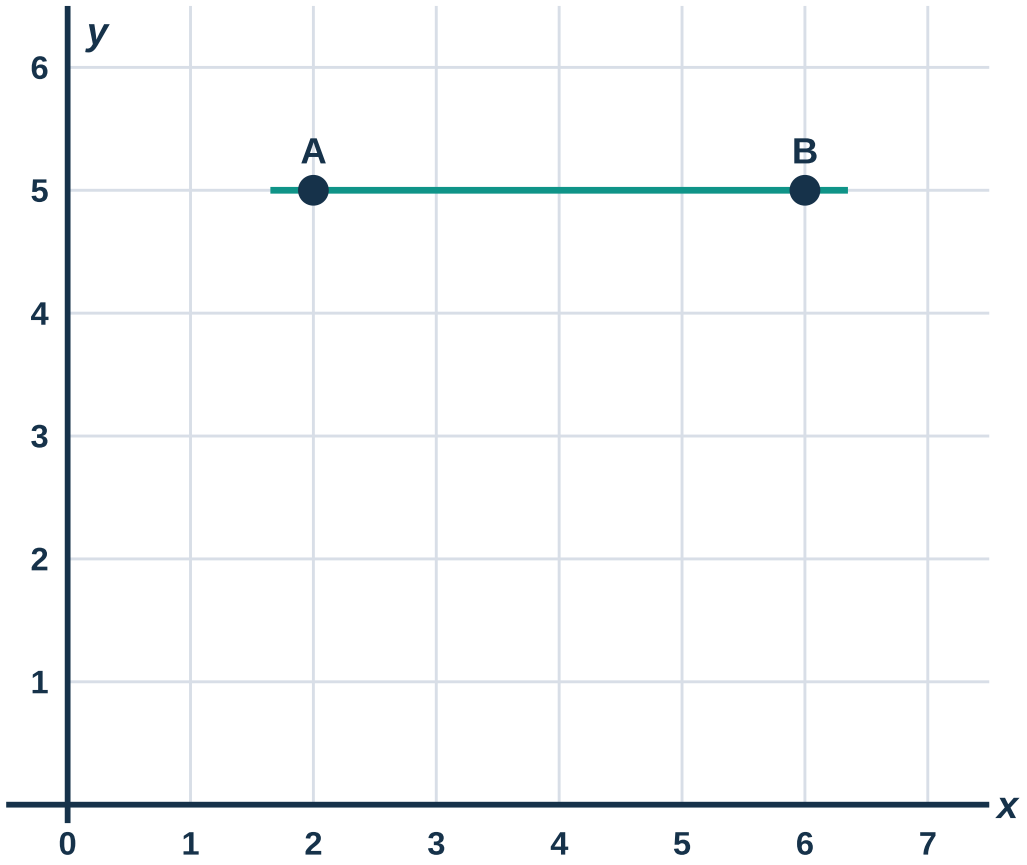
10 A level shelf is drawn on the grid as a line through points A and B. Read the coordinates of A and B from the grid, then find the slope of the shelf.



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ANSWER KEY

1. 3

2. 2

3. 0

4. Undefined

5. 2

6. 3

7. 3

8. 1

9. 2

10. 0

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