

## Developing Conceptual Understanding for Slope

Draw the line that passes through

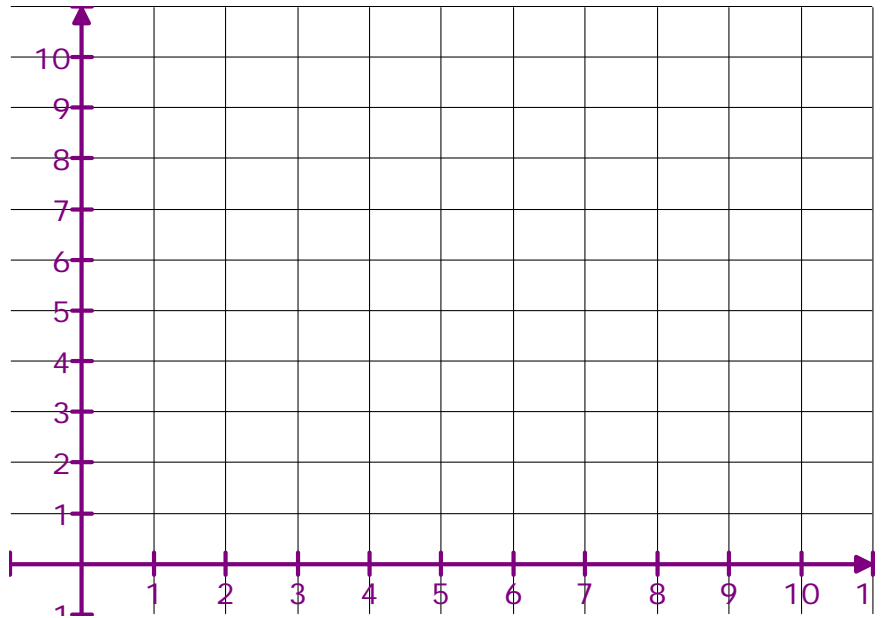
$(0,3)$  and  $(2,7)$

$(0,3)$  and  $(5,8)$

$(0,3)$  and  $(8,7)$

As you move to the right from  $(0,3)$  on each of these lines, what happens to both the  $x$  and  $y$  values of the coordinates on all three lines?

Would you describe these lines as having positive or negative slope?



What can you tell me about the steepness of each line?

Explain how you determined the steepness of the line.

Draw the line that passes through

$(0,6)$  and  $(2,5)$

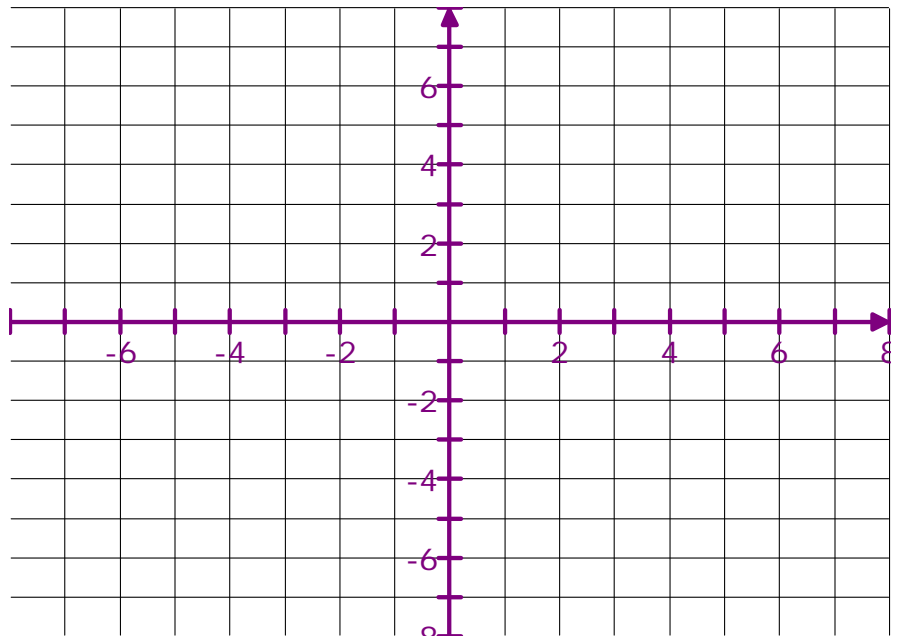
$(0,6)$  and  $(5,1)$

$(0,6)$  and  $(6,-6)$

As you move to the right from  $(0,6)$  on each of these lines, what happens to both the  $x$  and  $y$  values of the coordinates on all three lines?

Would you describe these lines as having positive or negative slope?

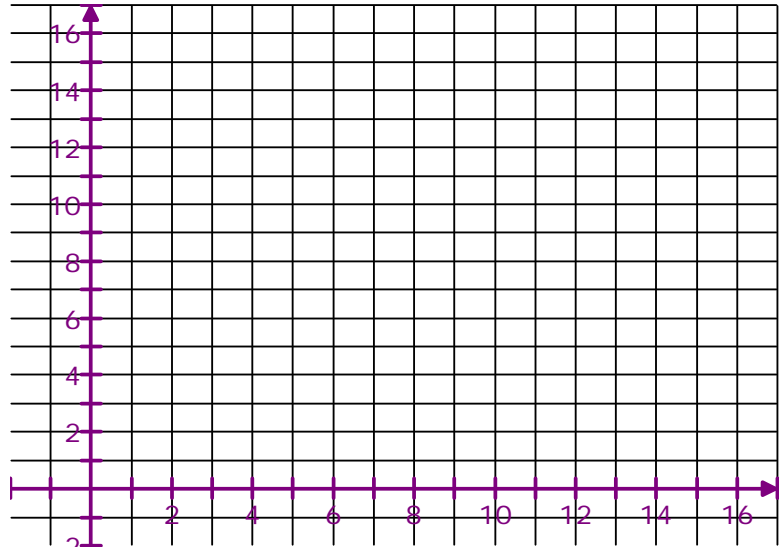
What can you tell me about the



steepness of each line?

Explain how you determined the steepness of the line.  
The time and position of two people is described in the chart. Create a graph of their position.

Time	Position of Person 1	Position of Person 2
0	5	15
1	7	12
2	9	9
3	11	6
4	13	3
5	15	0



Draw a line that represents the position of person 1.

What is happening to the position of Person 1?

How is this reflected in the graph of these points?

What is the steepness of this set of points?

What does it mean when a slope is positive?

Draw a line that represents the position of person 2.

What is happening to the position of Person 2?

How is this reflected in the graph of these points?

What is the steepness of this set of points?

What does it mean when a slope is negative?

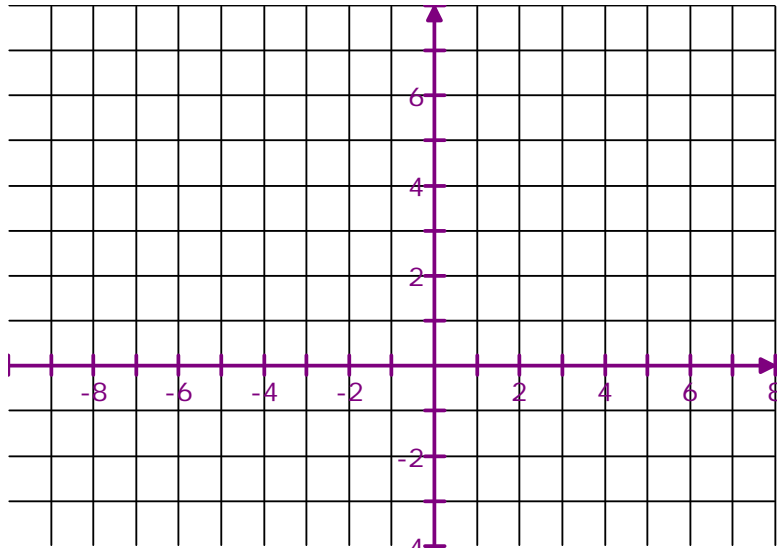
Plot the points and draw a line through the points.

- $(-8, -2)$
- $(-4, 0)$
- $(0, 2)$
- $(2, 3)$
- $(6, 5)$

How steep is this line? We call this steepness the slope of the line.

Draw a line parallel to this line that passes through  $(0, 5)$ .

Explain how you were able to complete this task.



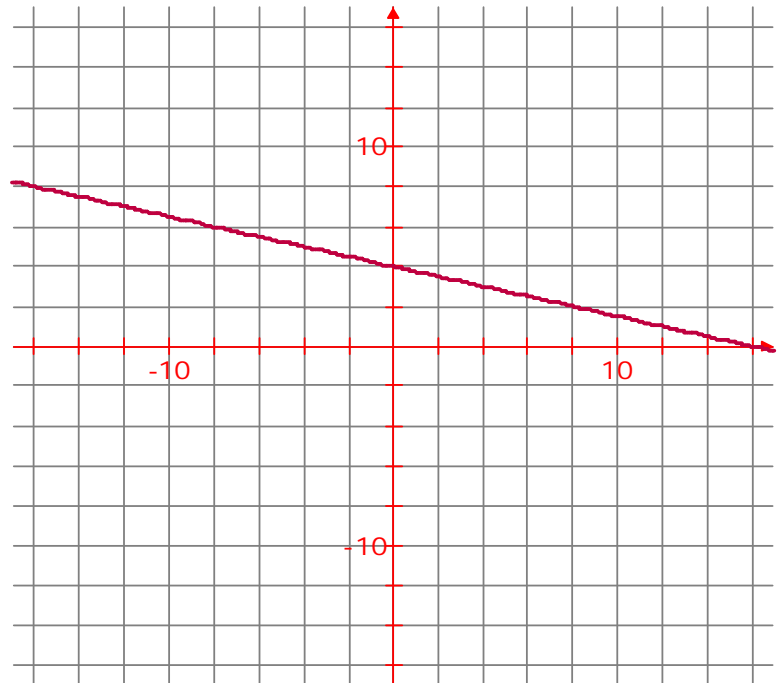
What is the slope of the second line?

Study the line at the right.

Create a second line that is parallel to this line that passes through  $(-8, -4)$ .

Name at least 3 other points that are on this new line.

Explain how you know these points are on the new line.



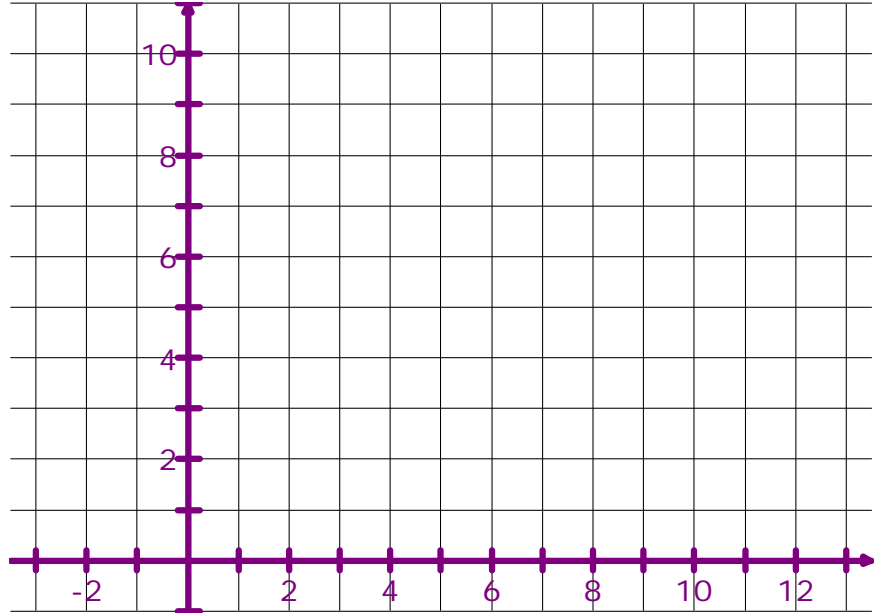
Create a line through  $(0,2)$  and  $(4,10)$ .

Use the edge of a sheet of paper to create a line perpendicular to the given line at the point  $(2,6)$ .

Draw the line and find its slope or steepness.

Explain what you found out about the slope of the perpendicular line.

Describe how the two slopes are related.



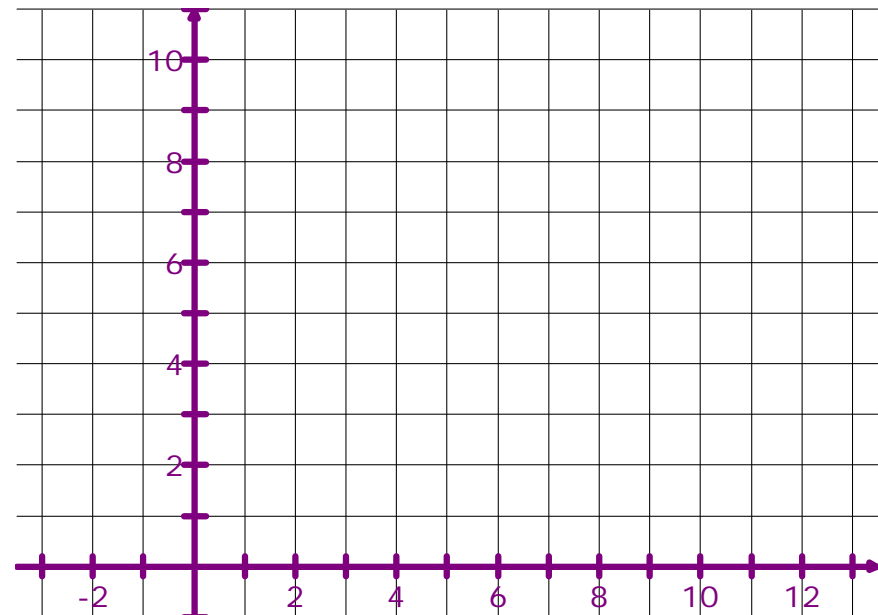
Create a line through  $(0,6)$  and  $(8,0)$ .

Use the edge of a sheet of paper to create a line perpendicular to the given line at the point  $(4,3)$ .

Draw the line and find its slope or steepness.

Explain what you found out about the slope of the perpendicular line.

Describe how the two slopes are related.



Create a line through  $(4,4)$  and  $(0,5)$ .

Then draw a perpendicular line to this line that passes through  $(4,4)$ .

What did you notice about the slope of this perpendicular line?

