Teacher Notes

Activity 1

Investigating Slope and Y-Intercept

Objective

- Students will develop an understanding of the effect of changing the parameters m and b on the equation $y=mx + b$

Applicable TI InterActive! Functions

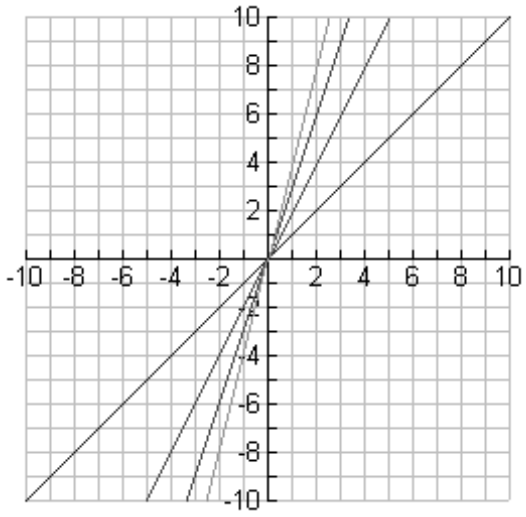
- Graph
- Trace

Problem

The graph of the linear function $y = mx + b$ will be affected by changing the values of m and b. In this activity, students will adjust the two parameters and record their observations about the effects on the parameters, m and b, on the graph of $y = mx + b$.

Slope Exploration

1. through 6.



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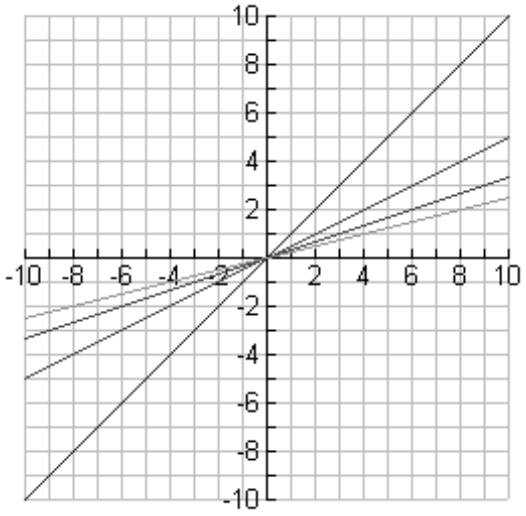
Slope Analysis

1. A. $m = 1$, B. $m = 2$, C. $m = 3$, D. $m = 4$

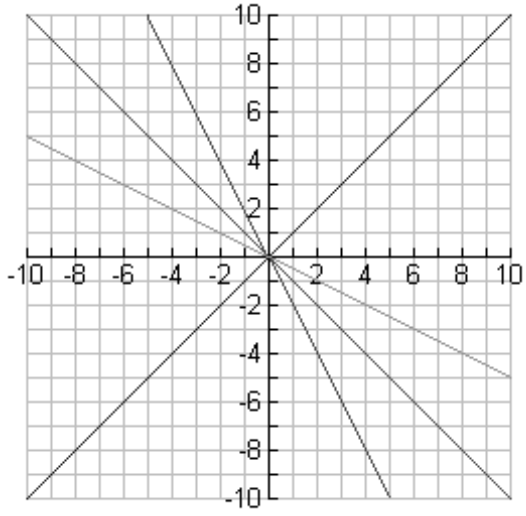
2. The greater the value of m, the steeper the graph.

3. through 7.



8. The slopes are 1, 1/2, 1/3 and 1/4. As the value of m becomes smaller, the graph becomes less steep.

9. through 13.



14. The slopes are 1, -1 -2, and -1/2. The graphs with negative slopes all decrease as x increases. As the value of m approaches zero, the graph becomes less steep.

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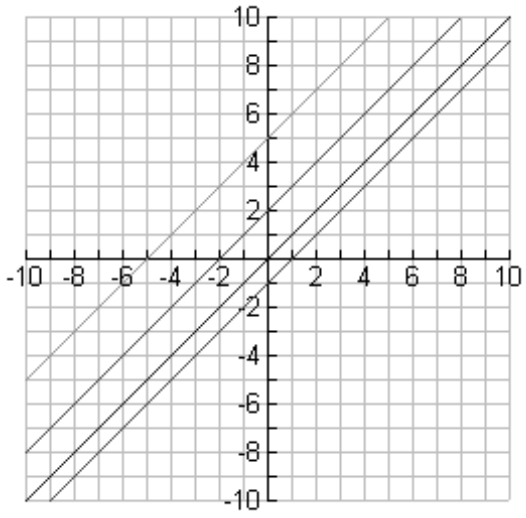
Y-Intercept Exploration

1. through 5.

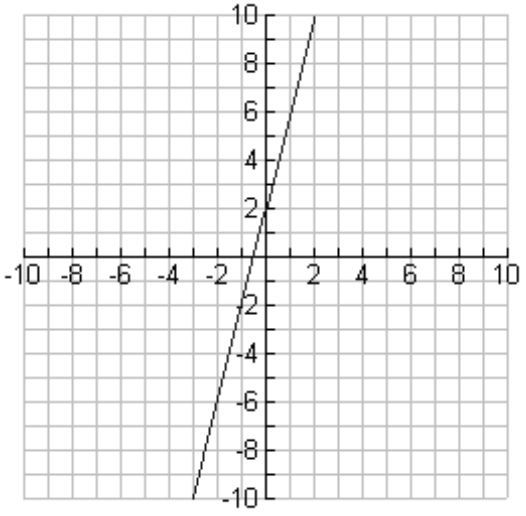


Y-Intercept Analysis

1. A. $b = 0$, B. $b = 2$, C. $b = -1$, D. $b = 5$
2. For $b > 0$, the line shifts up b units. For $b < 0$, the line shifts down b units.
3. A. $y = 0$, B. $y = 2$, C. $y = -1$, D. $y = 5$
4. The y-intercepts and the values of b are the same.

Additional Exercise Notes and Solutions

1. $m = 4$ and $b = 2$



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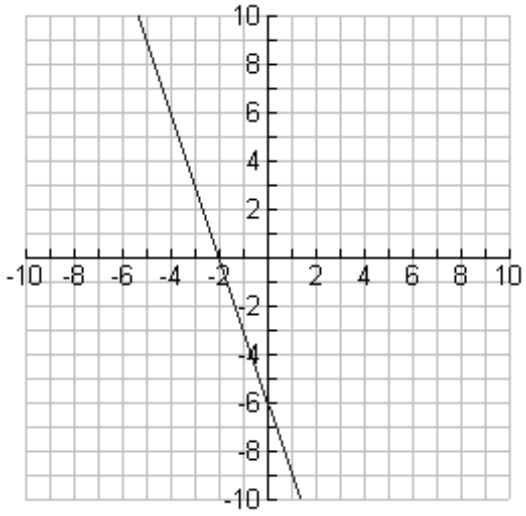
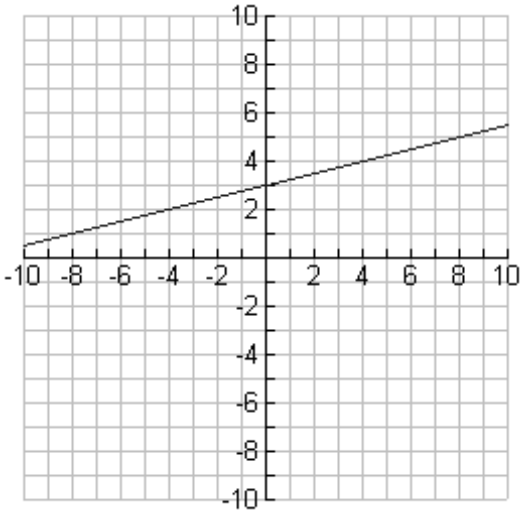
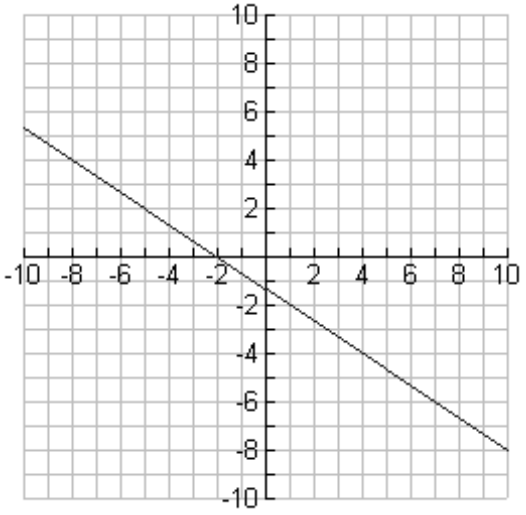
2. $m = -3$ and $b = -6$



3. $m = \frac{1}{4}$ and $b = 3$



4. $m = -\frac{2}{3}$ and $b = -\frac{4}{3}$



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