



Graphing Calculator

A Follow-Up of Lesson 5-3

TI-73

Families of Linear Graphs

A family of people is a group of people related by birth, marriage, or adoption. Recall that a *family of graphs* includes graphs and equations of graphs that have at least one characteristic in common.

Families of linear graphs fall into two categories—those with the same slope and those with the same y -intercept. A graphing calculator is a useful tool for studying a group of graphs to determine whether they form a family.

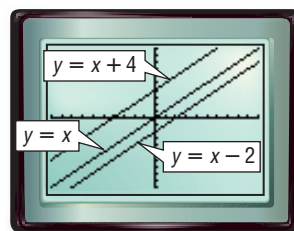
Example 1

Graph $y = x$, $y = x + 4$, and $y = x - 2$ in the standard viewing window. Describe any similarities and differences among the graphs. Write a description of the family.

Enter the equations in the $Y=$ list as Y_1 , Y_2 , and Y_3 . Then graph the equations.

KEYSTROKES: Review graphing on pages 224 and 225.

- The graph of $y = x$ has a slope of 1 and a y -intercept of 0.
- The graph of $y = x + 4$ has a slope of 1 and a y -intercept of 4.
- The graph of $y = x - 2$ has a slope of 1 and a y -intercept of -2 .



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Notice that the graph of $y = x + 4$ is the same as the graph of $y = x$, moved 4 units up. Also, the graph of $y = x - 2$ is the same as the graph of $y = x$, moved 2 units down. All graphs have the same slope and different intercepts.

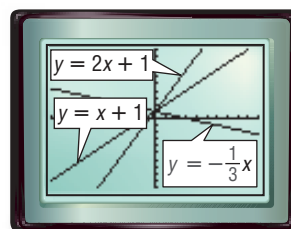
Because they all have the same slope, this family of graphs can be described as linear graphs with a slope of 1.

Example 2

Graph $y = x + 1$, $y = 2x + 1$, and $y = -\frac{1}{3}x + 1$ in the standard viewing window. Describe any similarities and differences among the graphs. Write a description of the family.

Enter the equations in the $Y=$ list and graph.

- The graph of $y = x + 1$ has a slope of 1 and a y -intercept of 1.



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www.algebra1.com/other_calculator_keystrokes