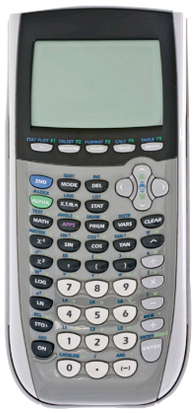
D. Graphing Linear Relations Using Technology

Many calculators and computer programs are capable of graphing linear relations from an equation. Typically, you will enter the right side of an equation of the form $y = mx + b$. You may need to adjust the axis size and scale to see the graph of the relation properly. For instructions on how to graph a relation, either refer to your calculator's instruction manual or enter "graphing relations using [the name of your graphing calculator or graphing program]" into a search engine. If you have difficulty graphing relations with technology, contact your teacher.

Detailed instructions for graphing using a TI-83™ and TI-84™ calculator can be found in the *Appendix*.



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Some graphing programs are limited to functions. That is, they can only graph equations of the form '$y =$___'. In the next lesson, you will see that some linear relations cannot be written in this form. These relations cannot be graphed by a program limited to functions.

Check Up

1. Use technology to graph the following relations.

   a. $y = 3x$

   b. $y = \frac{1}{2}x - 3$

   c. $y = -4x + 8$

☑ Compare your answers.

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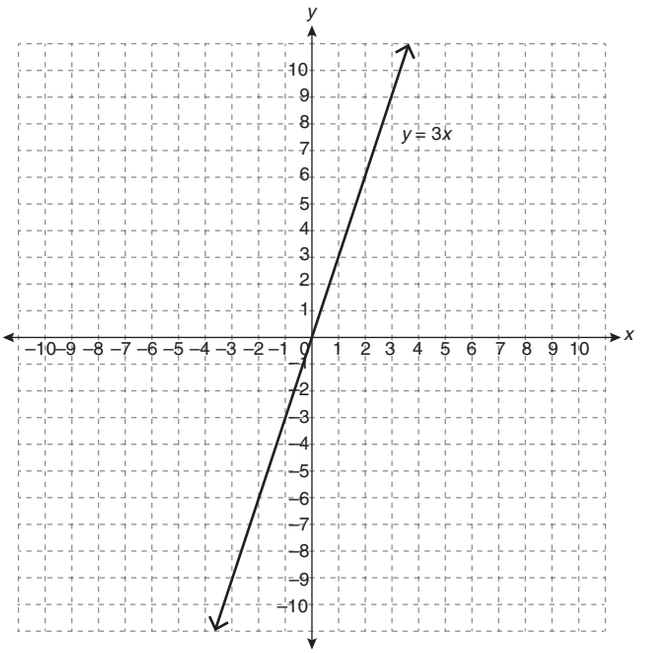
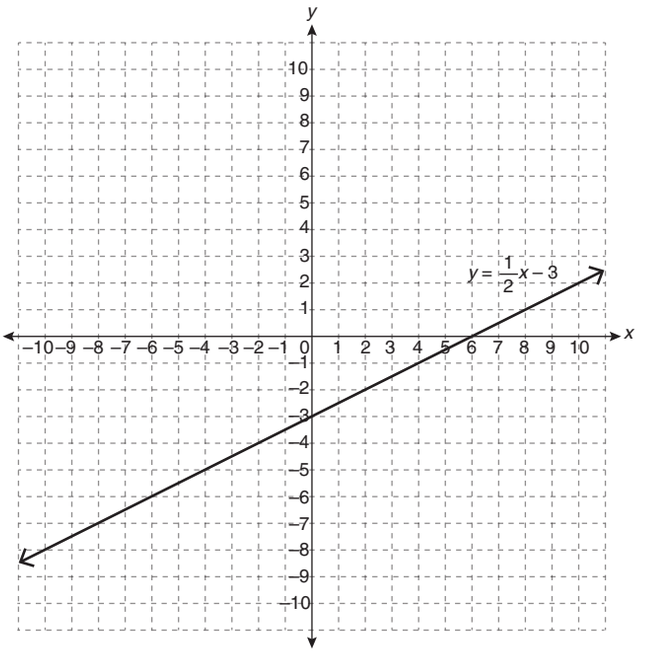
   a. $y = 3x$

   Graphs will vary depending on the scales and zoom used. A sample is shown.



   b. $y = \frac{1}{2}x - 3$

   Graphs will vary depending on the scales and zoom used. A sample is shown.



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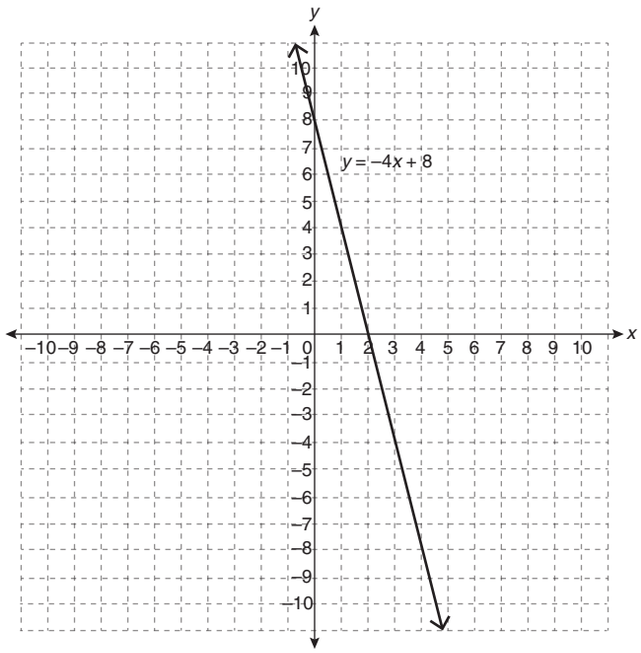

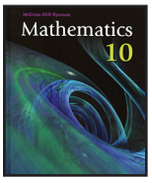

For further information about linear equations in slope-intercept form, see pp. 340 – 349 of *Mathematics 10*.

Multimedia

Additional video examples related to this lesson have been provided.

The slope-intercept form is a way of writing a linear equation. This equation format is useful because the slope and the y-intercept of the graph of the corresponding relation can be easily obtained from the equation. On the graph of a linear relation, the slope represents how quickly one quantity changes as the other quantity changes, and the y-intercept gives the y-value when the x-value is zero. These two pieces of information can be used to sketch graphs quickly, or to visualize a graph without actually sketching it.

In the next lesson, you will explore another form for a linear equation that is used to represent linear relations – the general form.