3-6 Technology LAB

Use with Lesson 3-6

Explore Parallel and Perpendicular Lines

A graphing calculator can help you explore graphs of parallel and perpendicular lines. To graph a line on a calculator, you can enter the equation of the line in *slope-intercept form*. The slope-intercept form of the equation of a line is $y = mx + b$, where m is the slope and b is the y-intercept. For example, the line $y = 2x + 3$ has a slope of 2 and crosses the y-axis at (0, 3).

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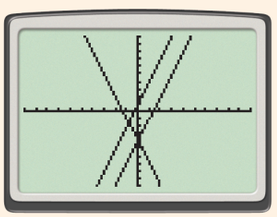
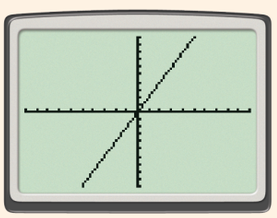
KEYWORD: MG7 Lab3

Activity 1

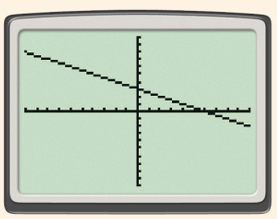
1 On a graphing calculator, graph the lines $y = 3x - 4$, $y = -3x - 4$, and $y = 3x + 1$. Which lines appear to be parallel? What do you notice about the slopes of the parallel lines?



2 Graph $y = 2x$. Experiment with other equations to find a line that appears parallel to $y = 2x$. If necessary, graph $y = 2x$ on graph paper and construct a parallel line. What is the slope of this new line?



3 Graph $y = -\frac{1}{2}x + 3$. Try to graph a line that appears parallel to $y = -\frac{1}{2}x + 3$. What is the slope of this new line?



Try This

1. Create two new equations of lines that you think will be parallel. Graph these to confirm your conjecture.
2. Graph two lines that you think are parallel. Change the window settings on the calculator. Do the lines still appear parallel? Describe your results.
3. Try changing the y-intercepts of one of the parallel lines. Does this change whether the lines appear to be parallel?