

What's Our Line?

Linear Equations

Each group of three ordered pairs given below lie on the same line. Use your calculator to help you find the equation of the line that contains the three points in each group. In each case, explain how you know that this is the correct linear equation.

x	-3	-1	3
y	-1	1	5

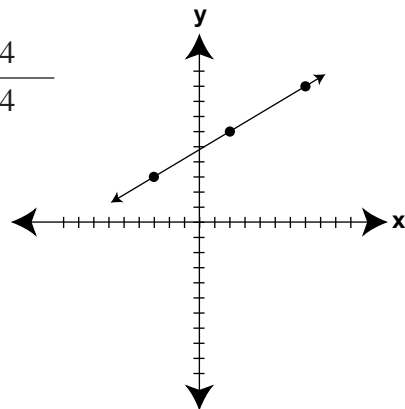
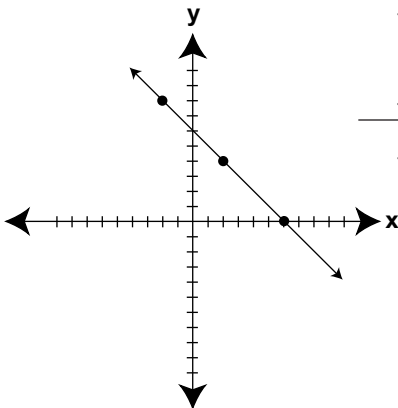
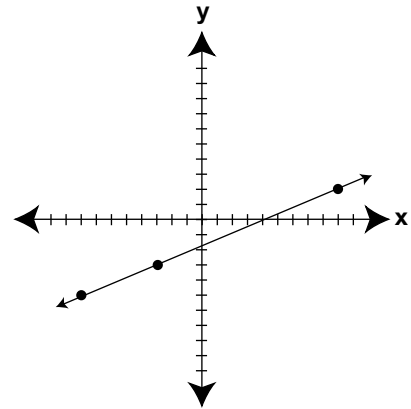
x	-5	1	4
y	-8	-2	1

x	-6	-1	2
y	-1	4	7

x	-9	4	9
y	-15	-2	3

x	-3	-1	4
y	-3	1	11

x	-4	2	4
y	-12	0	4



Thinking Cap



Write three ordered pairs that you think lie on one line. Explain how you can check to see if they do lie on the same line. Make any necessary changes in your ordered pairs and then write a linear equation for the line that contains them.

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Linear Equations

Topic: Writing Linear Equations

Objective: To use the calculator to find linear equations.

NCTM Standards: Communication, Reasoning, Number and Number Relationships

Using the Activity

Students use the calculator in this activity to help them find a linear equation that contains three given points.

- The **X↔Y** key can be used to switch back and forth from the x -value to the y -value.

Example To find the equation for the first set of ordered pairs, look for a pattern between the x -values and the y -values. The difference between each x -value and each y -value is 2. So the equation must be $y = x + 2$. To check this, first press 3 **+/-** **M+** to enter -3 into the memory of the calculator. Then enter **+** 2 **=** to get the result of -1 . Press the **X↔Y** key to go back to the x -value entered. This key can be pressed numerous times to go back and forth between the x - and y -values.

Assessment Students should be encouraged to check each equation by substituting the y -value into the equation and solving for x .

Answers

Set 1: See example above.

Set 2: $y = x - 3$

Set 3: $y = x + 5$

Set 4: $y = x - 6$

Set 5: $y = 2x + 3$

Set 6: $y = 2x - 4$

Thinking Cap Answers

Answers may vary. See students' work.