

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Linear Equations and the TI-Navigator

Use the random integer feature to find 4 numbers between -10 and 10. Let these numbers represent the coordinates of 2 points.

Write down the 2 points.

Point 1: ( \_\_\_\_\_, \_\_\_\_\_)      Point 2: ( \_\_\_\_\_, \_\_\_\_\_)

Find the slope of the line that goes through these two points. (you must show your work)

Write an equation in Point-Slope form for the line that goes through these two points.

**QP:** *True or False* -- The equation  $y = -4 - 1.5(x + 8)$  has a slope of -4

Go to the activity center of the navigator application and enter your equation into y1.

Does your line go through the two points?

If not, go back and find the equation that does.

Rewrite your point-slope equation in intercept form. (show all work)

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**QP:** What is the y-intercept of the following equation:  $y = 7 - 4x$

- a. (0, -4)
- b. (7, 0)
- c. (-4, 0)
- d. (0, 7)

**QP:** What property did you use to rewrite your equation?

- a. Associative
- b. Commutative
- c. Distributive
- d. Multiplicative

Go to the activity center of the navigator application and enter your equation into y1.

Do you see your new line?

Why or why not?

Use the random integer feature of your calculator to generate 1 random integer between -10 and 10.

What is this number? \_\_\_\_\_

Now find another point on the line by using the number you just generated as the x-value for the point. (show all your work)

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What is your point? ( \_\_\_\_\_, \_\_\_\_\_ )

Get back into the activity center, and enter this point when prompted.

Does your point appear on the line? \_\_\_\_\_

If not, go back and re-find the point using your x-value.

**QP:** *True or False* – To find the y-value of your point you had to undo the order of operations.

Write an equation in point-slope form using the point you just found.

In the activity center, enter this equation into y1.

What do you notice?

Rewrite your point-slope equation in intercept form. (show all work)

What do you notice about you equation in intercept form?

Generate another random integer between -10 and 10.

What is this number? \_\_\_\_\_

Now find another point on the line by using the number you just generated as the y-value for the point. (show all you work)

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What is your point? ( \_\_\_\_\_, \_\_\_\_\_ )

Get back into the activity center, and enter this point when prompted.

Does your point appear on the line? \_\_\_\_\_

If not, go back and re-find the point using your y-value.

Write an equation in point-slope form using the point you just found.

In the activity center, enter this equation into y1.

What do you notice?

Rewrite your point-slope equation in intercept form. (show all work)

QP: Point-slope equations that represent the same line have the same intercept equation.

Always

Sometimes

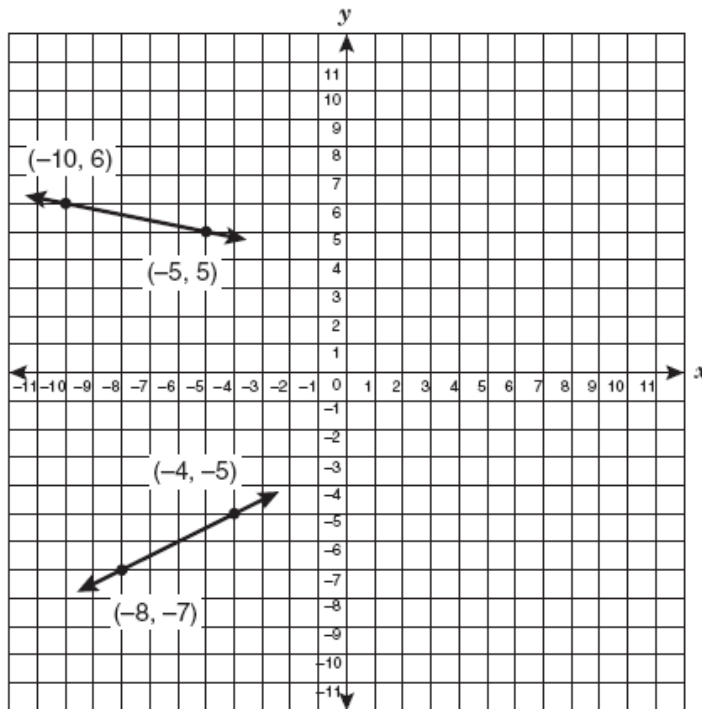
Never.

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**Check for Understanding:**

1. The graph of a system of linear equations is shown below.



Which of the following is the solution to this system of linear equations?

- F  $(0, 4)$
  - G  $(8, 1)$
  - H  $(0, -3)$
  - J  $(10, 2)$
2. Which equation represents the line that passes through the points  $(-1, 4)$  and  $(3, 2)$ ?

F  $y = -\frac{1}{2}x + \frac{7}{2}$

G  $y = -\frac{1}{2}x + \frac{9}{2}$

H  $y = -2x + 7$

J  $y = -2x + 3$