Linear Inequalities LI10

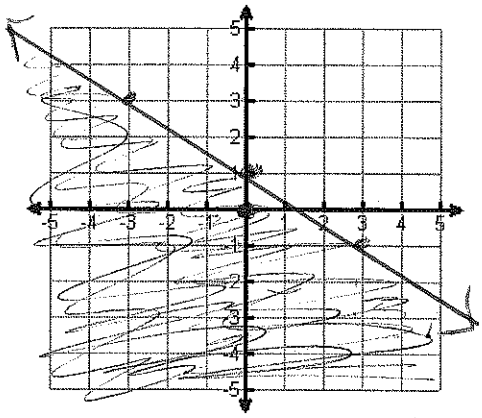
Graphing Two Variable Inequalities

Day 2 Homework

Name KEY

Date _____ Period _____

1. Graph the inequality $y \leq \frac{-2}{3}x + 1$. Use substitution to determine whether each given point is part of the solution to this inequality.



a. $(-3, 3)$ NO

$3 \leq -\frac{2}{3}(-3) + 1$

$3 \leq 2$

b. $(0, 0)$ yes

$0 \leq -\frac{2}{3}(0) + 1$

$0 \leq 1$

c. $(2, -1)$ yes

$-1 \leq -\frac{2}{3}(2) + 1$

$-1 \leq -\frac{4}{3} + \frac{3}{3}$

$-1 \leq -\frac{1}{3}$

d. $(1, 2)$ NO

$2 \leq -\frac{2}{3}(1) + 1$

$2 \leq -\frac{2}{3} + \frac{3}{3}$

$2 \leq \frac{1}{3}$

Tell whether the ordered pair is a solution of the given inequality.

2. $(-1, -4)$; $y \geq 2x - 1$

$-4 \geq 2(-1) - 1$

$-4 \geq -3$

NO

3. $(-6, 2)$; $y < -x - 4$

$2 < +(+6) - 4$

$2 < 2$

NO

4. $(4, -8)$; $y \leq \frac{1}{2}x + 5$

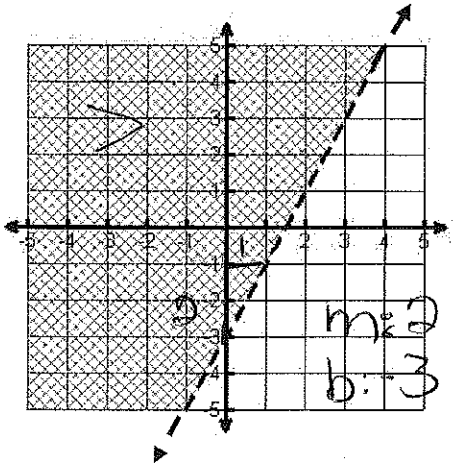
$-8 \leq \frac{1}{2}(4) + 5$

$-8 \leq 7$

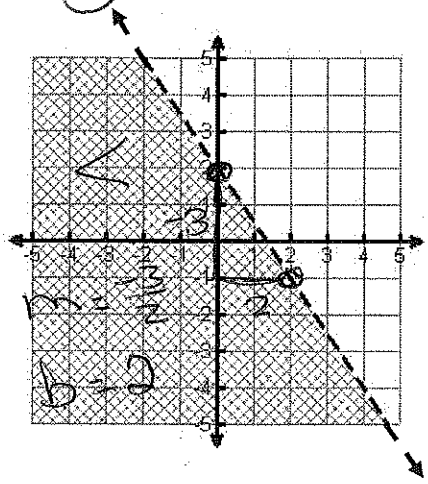
yes

Write an inequality for each graph.

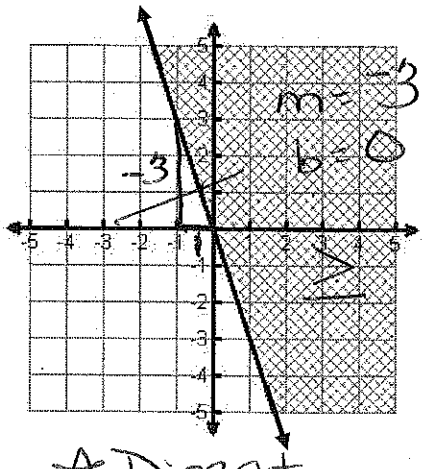
5. $y > 2x - 3$



6. $y < \frac{-3}{2}x + 2$



7. $y \geq -3x$

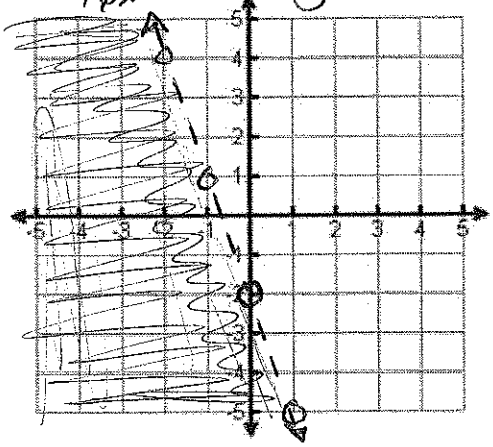


* Direct Variation → goes through the origin (0,0) & no "b"

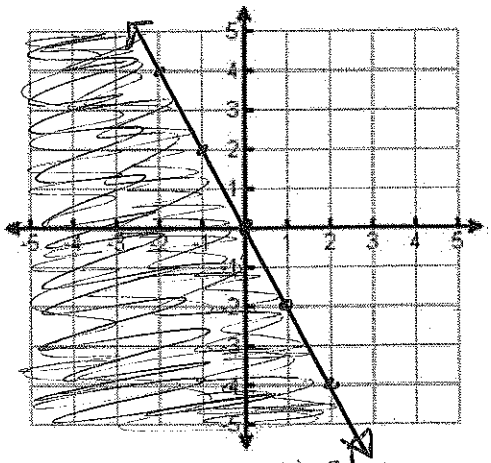
Linear Inequalities LI10

Graph each inequality on the coordinate plane.

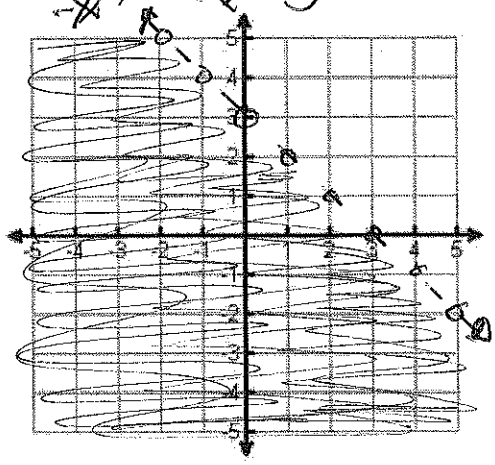
8. $-3x - y > 2$ $+3x$ $y < -3x - 2$



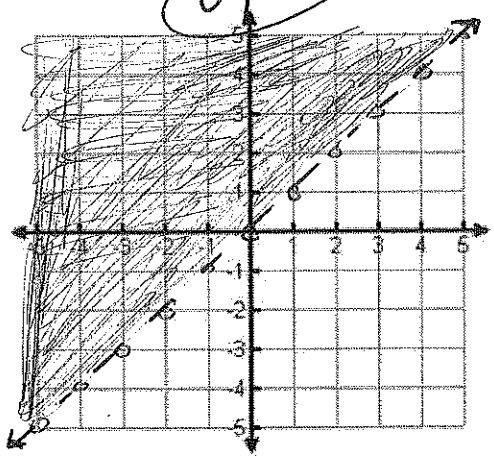
9. $y \leq -2x$



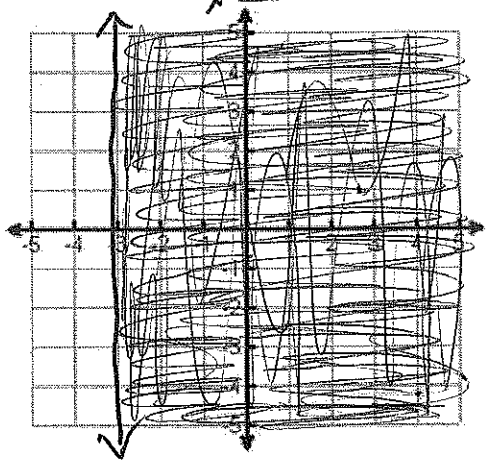
10. $y < 3 - x$ $y < -x + 3$



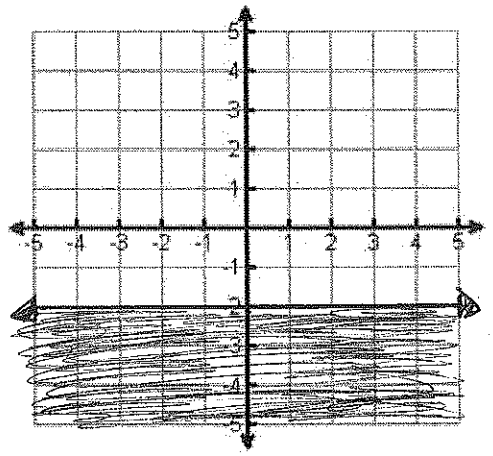
11. $y > x$



12. $x \geq -3$ Vertical undefined $x =$ equation



13. $y \leq -2$



Write an inequality. Graph the inequality, scale and label the axes.

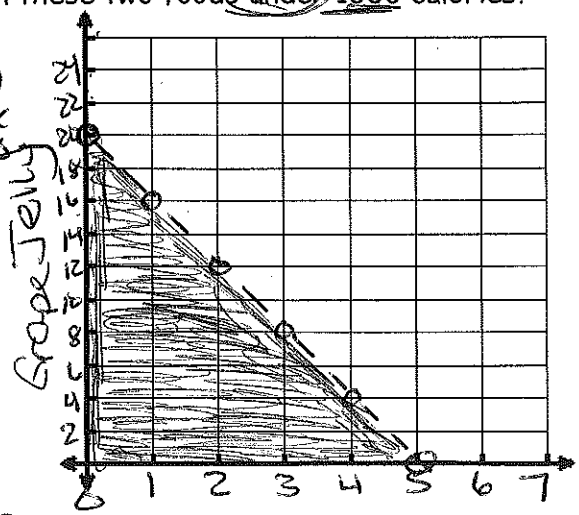
14. Eric loves peanut butter and jelly, sometimes together and sometimes separate. Peanut butter has 200 calories per serving, and grape jelly has 50 calories per serving. How many servings of each can Eric have if he keeps his total calorie intake from these two foods under 1000 calories?

Peanut butter (x)
Grape jelly (y)

$200x + 50y < 1000$
$-200x \quad -200x$
$\frac{50y}{50} < \frac{-200x + 1000}{50}$

15. State 3 possible solutions for the scenario.
Are they reasonable?

$y < -4x + 20$



(1, 2) $200(1) + 50(2) < 1000$
$200 + 100 < 1000$
$300 < 1000$ yes

(2, 6) } Both in the shaded region yes
(1, 12) }

* Generally would not have 12 servings of Jelly