Algebra 1 Name: Key

Homework 5.6 and 5.7 Hour: _____ Date: _____

Graphing Linear Inequalities in Two Variables and Systems of Linear Inequalities

1) How can you tell whether an ordered pair is a solution of a linear inequality?

If it satisfies both equations/inequalities.

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

2) $x + y < 7$; $(2,3)$ (x y)

$2+3<7$

$5<7$ ✓

Yes

3) $-x - 6y > 12$; $(-8, 2)$

$-(-8)-6(2)>12$

$+8-12>12$

$-4>12$ X

NO

Tell whether the ordered pair is a solution to the system of inequalities.

4) $(1, -1)$; $y < 4$ and $y > x + 3$

$-1<4$ ✓ $-1>1+3$ $-1>4$ X

NO

5) $(4, -3)$; $y \leq -x + 1$ and $y > x - 5$

$-3\leq-(4)+1$ $-3\leq-3$ ✓ $-3>4-5$ $-3>-1$ X

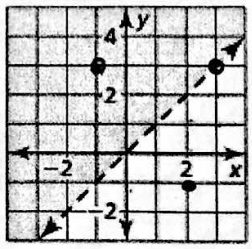
NO

Tell whether the ordered pair is a solution of the inequality whose graph is shown.

6) $(0, -1)$ No

7) $(-1, 3)$ yes

8) $(1, 4)$ yes



9) $(0, 0)$ No

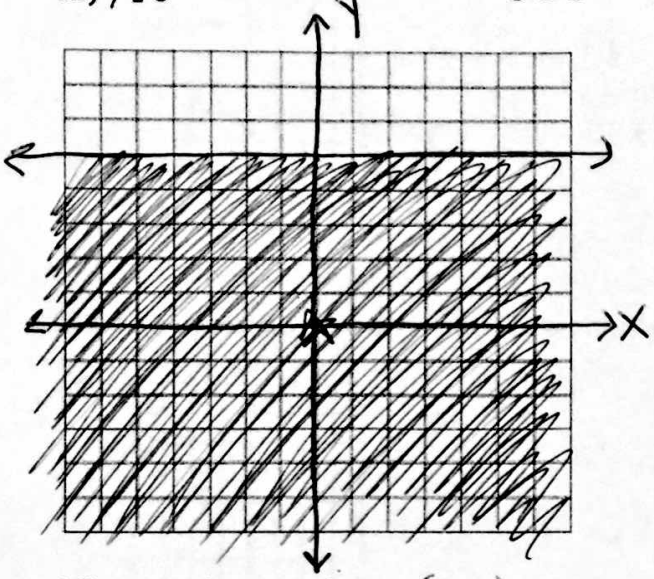
10) $(3, 3)$ No

11) $(2, 1)$ No

Graph the inequality (or system of inequalities) in a coordinate plane.

12) $y \leq 5$

$0 \leq 5$ ✓

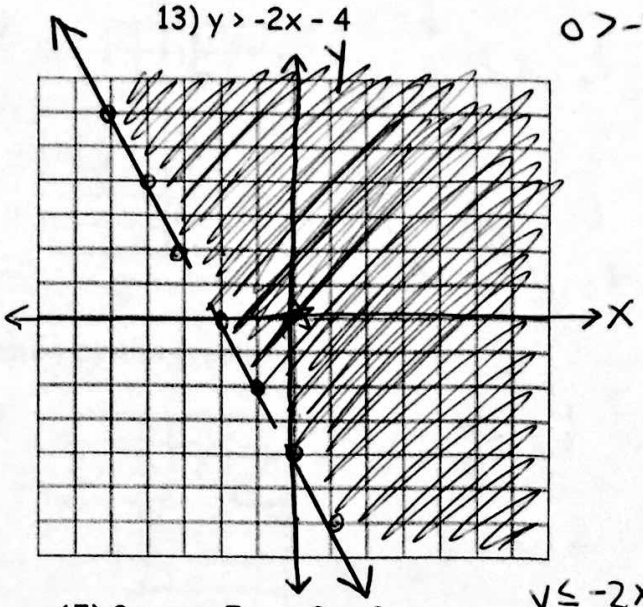


13) $y > -2x - 4$

Test (0,0)

$0 > -2(0) - 4$

$0 > -4$



14) $y < x - 1$; $y \geq x + 1$

(0,0)

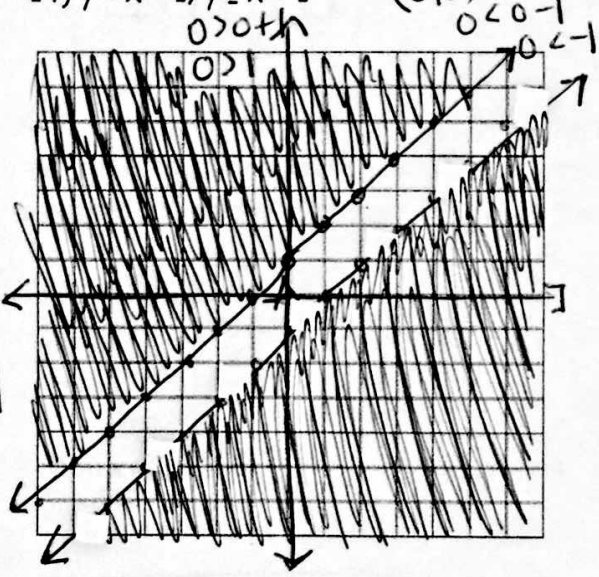
$0 < 0 - 1$

$0 < -1$

$0 > 0 + 1$

$0 > 1$

NO SOL.



15) $2x + y \leq 5$; $y + 2 \geq -2x$

$y \leq -2x + 5$

$y + 2 \geq -2x$

$-2 \quad -2$

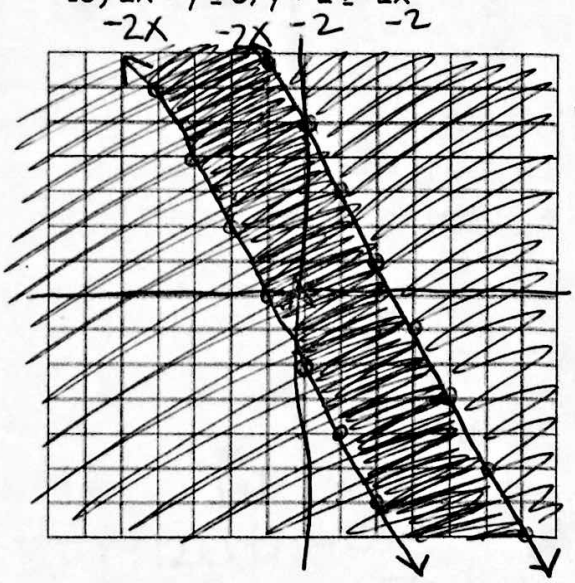
$y \geq -2x - 2$

$0 + 2 \geq -2(0)$

$2 \geq 0$ ✓

$2(0) + 0 \leq 5$

$0 \leq 5$ ✓

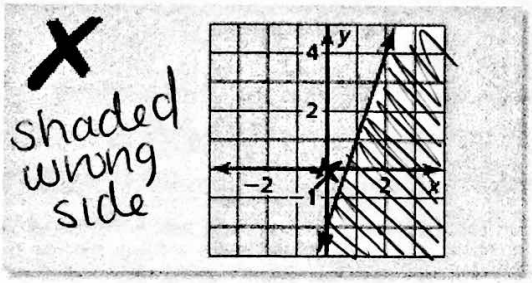


Describe **AND** correct the error in graphing the inequality (or system of inequalities).

16) $y \leq 3x - 2$

slope - correct

y-int - correct



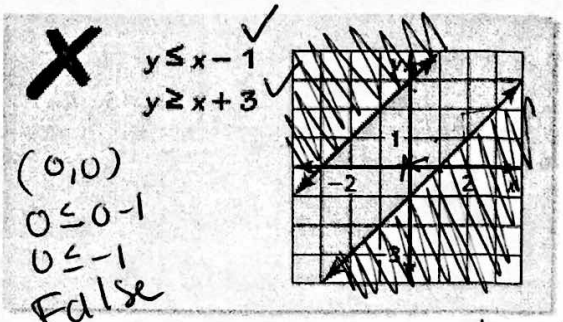
Test (0,0)

$0 \leq 3(0) - 2$

$0 \leq -2$

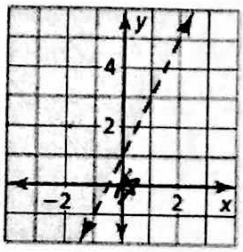
False

17)



Write an inequality that represents the graph.

18)

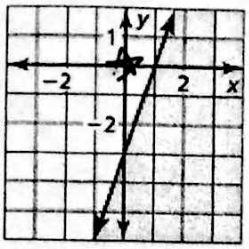


$y > 2x + 1$

$0 \quad 2(0) + 1$

$0 > 1$

19)



$y \leq 3x - 3$

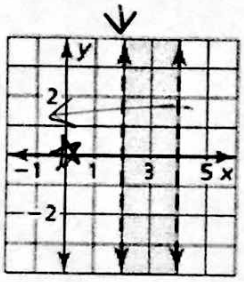
Test (0,0)

$0 \quad 3(0) - 3$

$0 \leq -3$ False

Write a system of linear inequalities represented by the graph.

20)



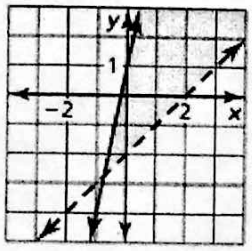
$x > 2$ and $x < 4$

$x = 2 \quad 0 > 2$

$x = 4$

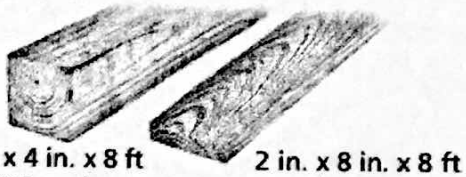
$0 < 4$

21)



$y \leq 5x + 1$ and $y > x - 2$

20) A carpenter has at most \$250 to spend on lumber. The inequality $8x + 12y \leq 250$ represents the numbers x of 2-by-8 boards and the numbers y of 4-by-4 boards the carpenter can buy. Can the carpenter buy twelve 2-by-8 boards and fourteen 4-by-4 boards? Explain.



4 in. x 4 in. x 8 ft
\$12 each

2 in. x 8 in. x 8 ft
\$8 each

$8x + 12y \leq 250$

2-by-8 → 12 4-by-4 → 14

$8(12) + 12(14) \leq 250$

$96 + 168 \leq 250$

$264 \leq 250$

No, not a solution