Section 6.5 Graphing Linear Inequalities in Two Variables

Linear inequality in two variables Graphed on a coordinate plane

Solution of a linear inequality in two variables

All of the solutions are shaded on the coordinate plane

EXAMPLES

1. Check whether the ordered pair is a solution of $4x + 5y < 12$.

x y

a. (-3, 5) $4(-3)+5(5)<12$ $-12+25<12$ $13<12$ No

b. (0, 2) $5(2)<12$ $10<12$ yes

c. (6, -8) $4(6)+5(-8)<12$ $24-40<12$ $-16<12$ yes

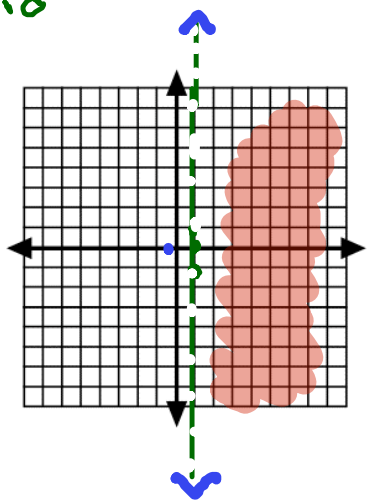
2. Sketch the graph of the following inequalities on a coordinate system.

$>$ $<$ dotted

$\leq$ $\geq$ solid

a. $x > 1$ $x=1$ (Graph)

x	y
1	-1
1	0
1	1



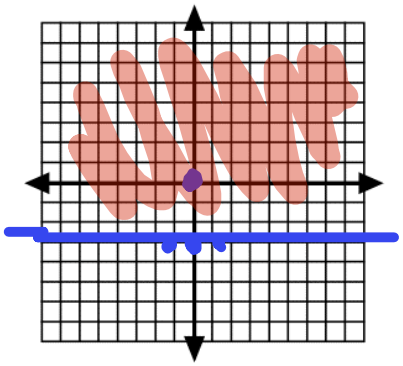
√(0,0) $x > 1$

$0 > 1$??

No

b. $y \geq -3$ solid

x	y
-1	-3
0	-3
1	-3



√(0,0) $y \geq -3$

$0 \geq -3$??

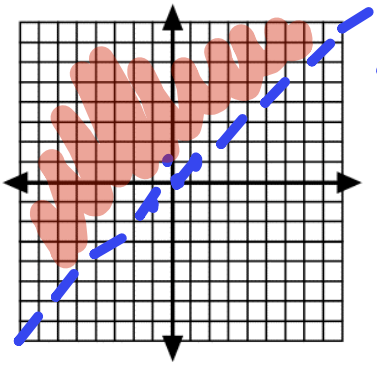
yes

y = x

x	y
-1	-1
0	0
1	1

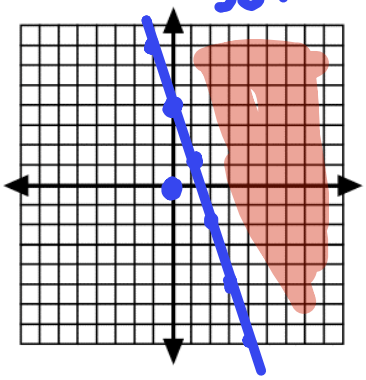
3. Sketch the graph of the following inequalities on a coordinate system.

a. $y > x$



dotted ✓ (0,1) 1 > 0 ✓

b. $y \geq -3x + 4$



solid

y = mx + b

m = -3

b = 4

✓ (0,0)

0 ≥ 4 NO

c. $-10x - 5y > -20$

dotted +10x

$-5y > 10x - 20$

$\frac{-5y}{-5} > \frac{10x}{-5} - \frac{20}{-5}$

$y < -2x + 4$

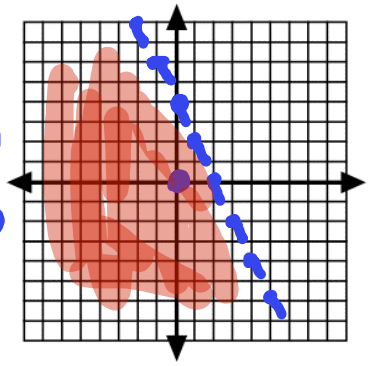
m = -2

b = 4

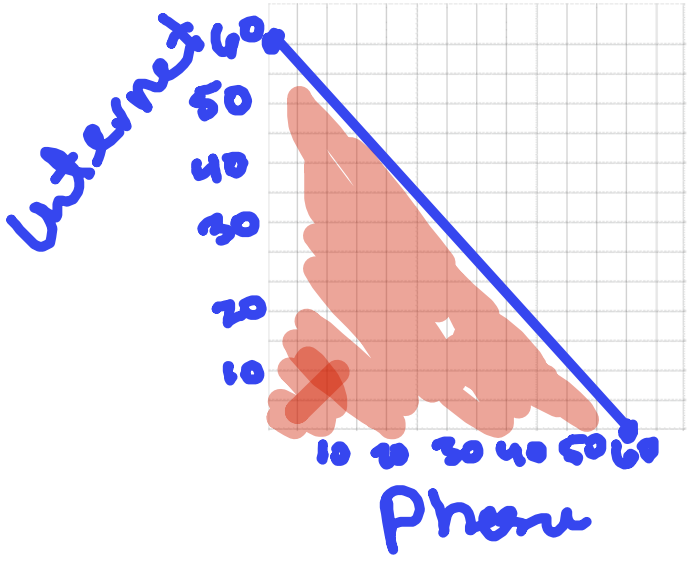
✓ (0,0)

0 > -20

yes



4. On school nights you are allowed a maximum of 60 minutes total to talk on the phone or surf the internet. What are the different amounts of time you can spend talking or surfing? Display your answer with a graph.



p = phone

s = int

$p + s \leq 60$

p = 0 s = 60

s = 0 p = 60