Warm Up

Solve:

1) $4x + 8 < -12$

$-8 \quad -8$

$\frac{4x}{4} < \frac{-20}{4}$

$x < -5$

2) $3x - 5 \geq 8x + 10$

$-8x \quad -8x$

$-5x - 5 \leq 10$

$-5x \leq 15$

$x \leq -3$

Graphing Linear Inequalities

1) Solve for y! Make sure the equation is in Slope-intercept form.
2) Graph using slope and y-intercept.
3) Solid or dashed line?
4) Shade above or below?

**Vertical Lines will be shaded to the right or left
** When the sign infront of the Y is negative, the direction of the inequality changes!

Vertical Lines: $x = \#$

Horizontal Lines $y = \#$

Solid Line

$\geq, \leq$

Dashed Line

$>, <$

Shade above

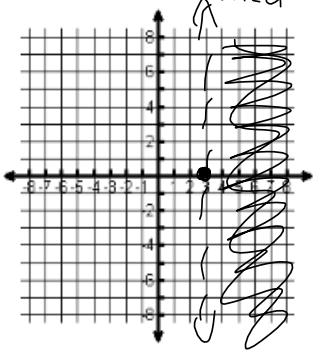
$\geq, >$

Shade below

$\leq, <$

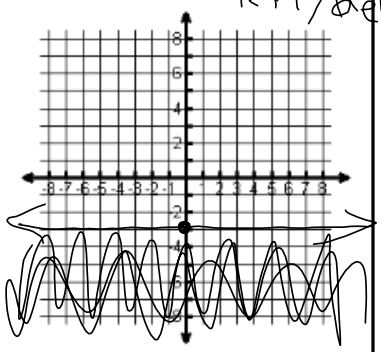
Graph: $y > 3$

shade above
dashed



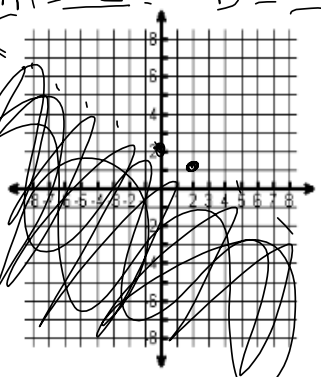
Graph: $y \leq -3$

Solid
left/below



Graph: $y \leq -\frac{1}{2}x + 2$

$m = \frac{2}{2}$ $b = 2$

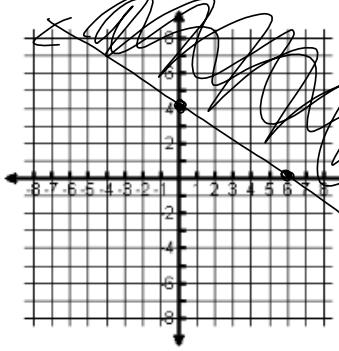


dashed

Graph: $2x + 3y \geq 12$

solid

$x = 6$ $y = 4$



$2x + 3y \geq 12$

$\frac{3y}{3} \geq -\frac{2}{3}x + \frac{12}{3}$ $y \geq -\frac{2}{3}x + 4$

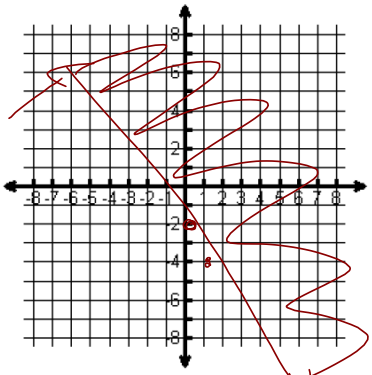
GSE Algebra I Unit 2 – Solving Equations & Inequalities (Regular)

Name: _____ Date: _____

Graphing Linear Inequalities

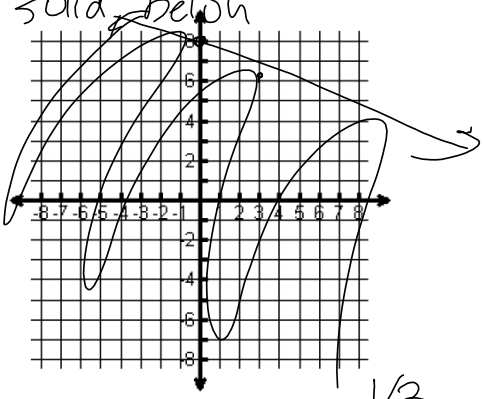
Sketch the graph of each linear inequality.

1) $y \geq -2x - 2$ m = $\frac{-2}{1}$ b = -2

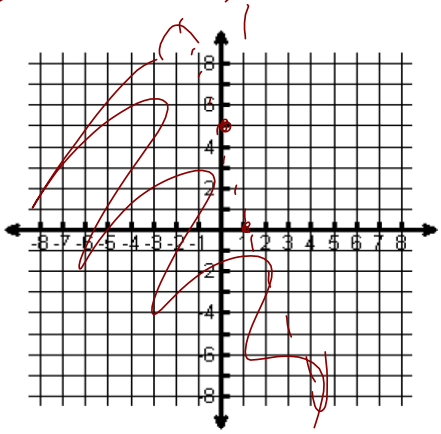


2) $y \leq -2/3x + 8$ m = $\frac{-2}{3}$ b = 8

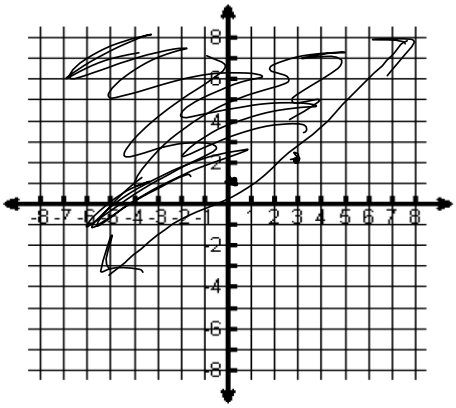
solid below



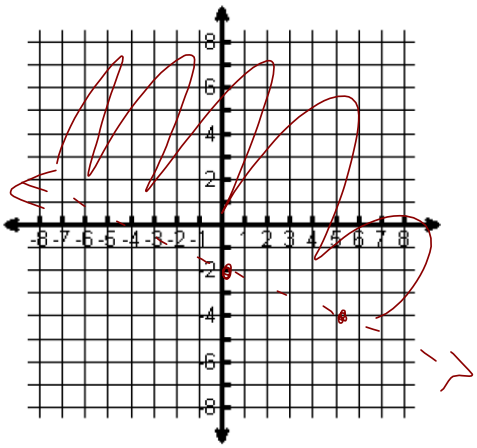
3) $y < -5x + 5$ m = -5 b = 5



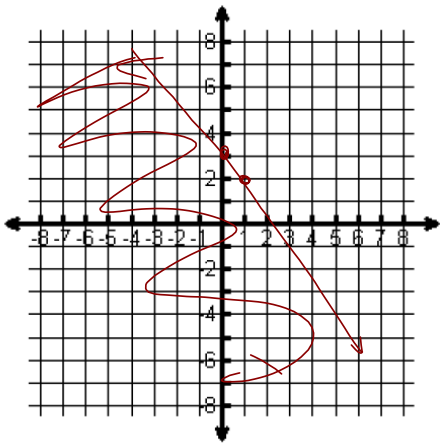
4) $y \geq 1/3x + 1$ m = $1/3$ b = 1



5) $y > -2/5x - 2$ m = $\frac{-2}{5}$ b = -2



6) $y \leq -x + 3$ m = $\frac{-1}{1}$ b = 3



1) Mrs. Warren is making her special cantaloupe and honeydew salad for a school banquet and doesn't want to spend no more than $30 at the supermarket. Currently, cantaloupes cost $2 each and honeydew melons cost $3 each. (Let x = cantaloupes and y = honeydew melons)

a) Write a mathematical model (inequality) representing the total amount of money Mrs. Warren can spend at the supermarket.

$2x + 3y \leq 30$

b) Can Mrs. Warren get 5 cantaloupes and have enough money? If so, how many honeydew melons could she get?

$2(5) + 3y \leq 30$

$x = 15$

$y = 10$

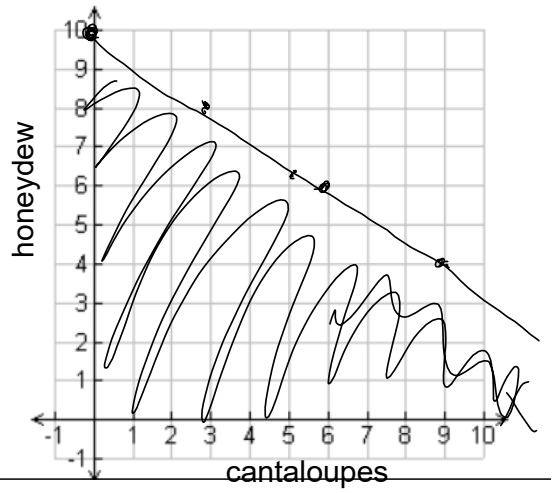
c) Graph the inequality. Label both axes!

$2x + 3y \leq 30$

$-2x \qquad -2x$

$\frac{3y}{3} \leq \frac{-2x}{3} + \frac{30}{3}$

$y \leq -\frac{2}{3}x + 10$



2) Shane wants to spend at most $40 on flowers at Home Depot. He wants to buy some mums for $5 a pot and daisies for $4 a pot. (Let x = mums and y = daisies)

a) Write a mathematical model (inequality) representing the total amount of money he could spend for mums and daisies.

$5x + 4y \leq 40$

b) Can Shane afford to purchase 3 mums and 6 daises? Show your work.

$5(3) + 4(6) \leq 40$

$15 + 24 \leq 40$ yes :)

$39 \leq 40$

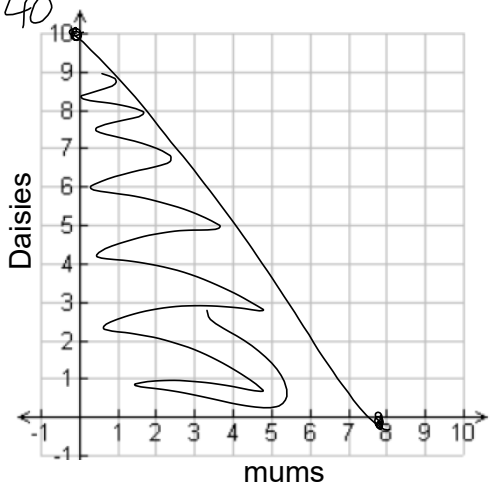
c) Graph the inequality. Label both axes!

$5x + 4y \leq 40$ or

$x = 8$

$y = 10$

$5x + 4y \leq 40$

$\frac{4y}{4} \leq \frac{-5x}{4} + \frac{40}{4}$

$y \leq -\frac{5}{4}x + 10$