Graphing Linear Inequalities
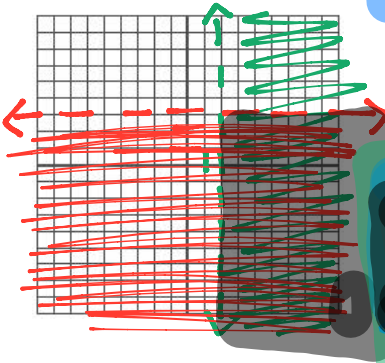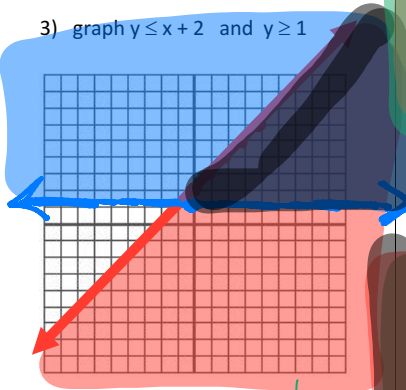2 variables

Name_____

1) graph x > 2 on a coordinate plane
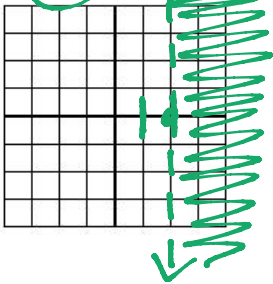
2) graph x > 2 and y < 3
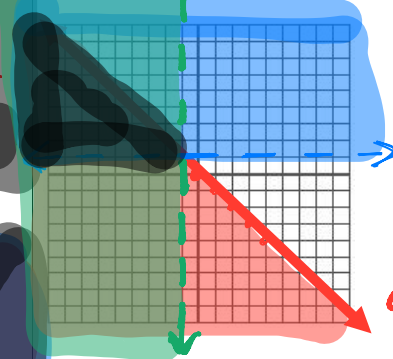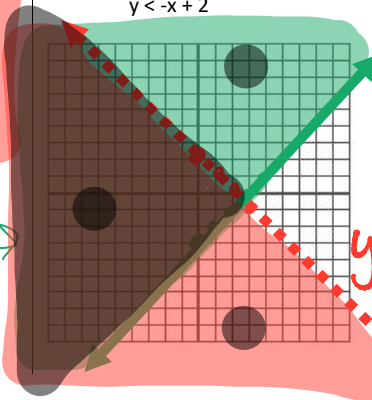
3) graph $y \leq x + 2$ and $y \geq 1$
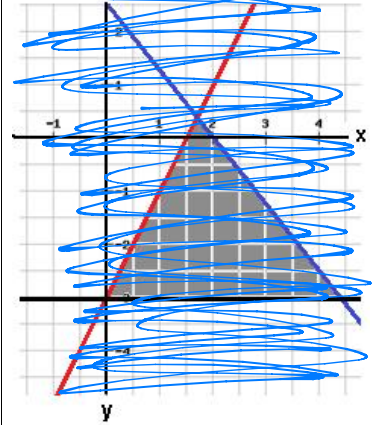
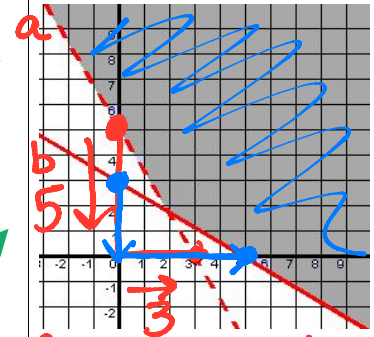4) graph $x \geq 0$ and y > 3x
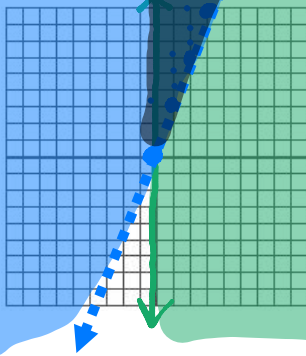
5) graph
$y \leq -x$ and y > 1 and x < -1

6) graph $y \geq x - 3$
$y < -x + 2$
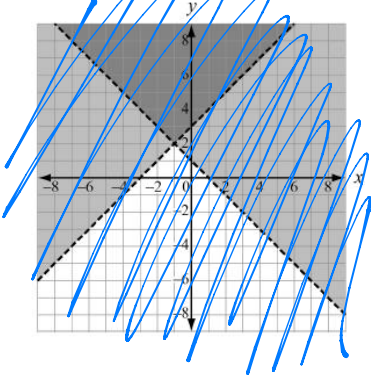
7) Write the system of inequalities that is graphed here.

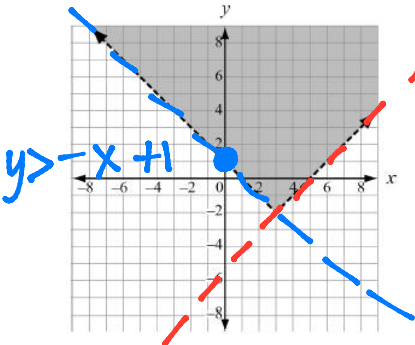8) Write the system of inequalities that is graphed here.

a

b
5

3

$$\text{a} \quad y > -\frac{5}{3}x + 5 \qquad \text{b} \quad y \geq -\frac{3}{5}x + 3$$

9) Write the system of inequalities that is graphed here.

10) Write the system of inequalities that is graphed here.

$y > -x + 1$

A.) $y > -x + 1$ and $y > x - 5$
B.) $y > x + 1$ and $y > x - 5$
C.) $y > -x + 1$ and $y > -x - 5$
D.) $y > x + 1$ and $y > x - 5$

$7(2) + 4(7) < 40$

$14 + 28 < 40$

$42 < 40$ ✗

Cale is throwing a party. One package of wings costs $7 (independent variable). Hot dogs cost $4 per pound. His budget must remain under $40, and Cale knows he'll buy at least 5 pounds of hot dogs.

11) Cale writes the system of inequalities that represents his food situation (because that's the kind of stuff Cale does). What is it?
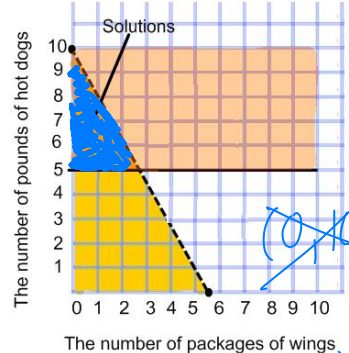
$x =$ wings
$y =$ hot dogs
$7x + 4y < 40$
$x \geq 0$ $y \geq 5$

12) Based on this graph, what are two examples of purchases he can make?

The number of pounds of hot dogs

The number of packages of wings

$(2,6)$ $(1,7)$ $(1,8)$
$(0,5)$

13) Show that your answers in #12 make sense with your inequalities in #11.
$7x + 4y < 40$
$7(0) + 4(5) < 40$
$20 < 40$ ✓

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14) The length of a rectangle exceeds its width by 8 inches. The perimeter is at least 80 inches. Find the smallest possible dimensions for the length and width.

$x + 8 = 24$

x Add 16 x

$x + 8 = 24$

$4x + 16 \geq 80$
-16 -16

$\dfrac{4x}{4} \geq \dfrac{64}{4}$

$x \geq 16$ in
$x \geq 24$ in

15) A student received grades of 92, 95, and 81 on the first three exams. What grade must the student earn on the fourth exam to get an average of no less than an A?

$\dfrac{92 + 95 + 81 + x}{4} \geq 90$

$\dfrac{268 + x}{4} \geq 90 \cdot 4$

$268 + x \geq 360$
-268 $+268$

$x \geq 92$