

Algebra I
7.9 Warm-Up
Systems of Inequalities

NAME: _____
DATE: _____ HOUR: _____

A gym teacher has \$120 to spend on new footballs and new volleyballs. The teacher wants to purchase at least 10 new balls. Each football is \$10 and each volleyball is \$8. Let x represent the number of footballs and let y represent the number of volleyballs.

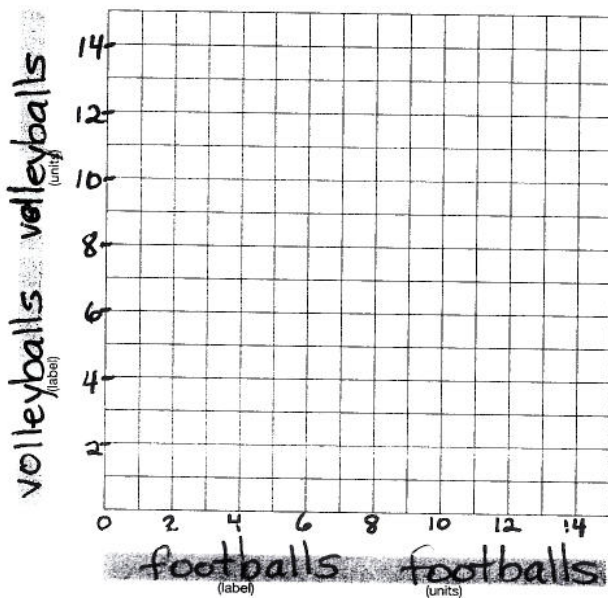
- A) Write an inequality for the **cost** of the new balls.
B) Find the x and y intercepts of this inequality.

x	y
0	0

- C) Write an inequality for the **number** of new balls.
D) Find the x and y intercepts of this inequality.

x	y
0	0

- E) Graph the 2 boundary lines and shade.



- F) Identify 2 solutions (2 ordered pairs) of this system. (,) (,)
G) What do these solutions mean in this situation?

- H) Algebraically show that one of your ordered pairs from Question F is a solution.

A teacher has \$60 to spend on lunch for his class. He plans to buy pizzas and 3-ft. subs. Each pizza is \$5 and each 3-ft sub is \$6. The teacher wants to purchase at least 7 items (pizzas/subs). Let x represent the number of pizzas and let y represent the number of subs.

A) Write an inequality for the **cost** of the lunch. _____

B) Find the x and y intercepts of this inequality.

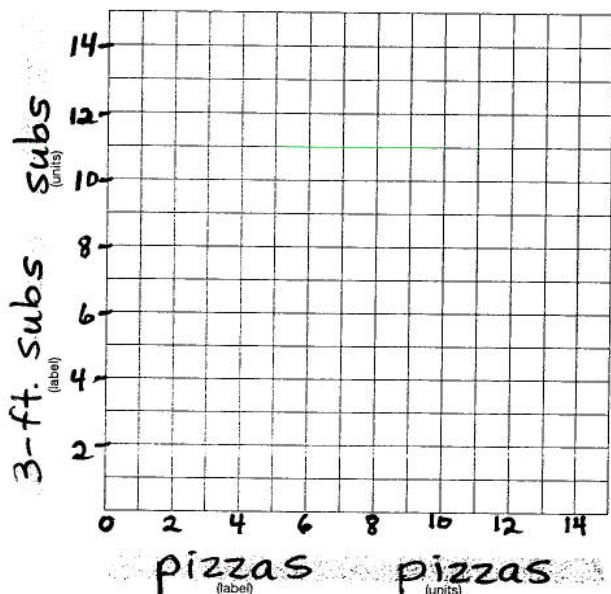
x	y
0	
	0

C) Write an inequality for the **number** of items purchased. _____

D) Find the x and y intercepts of this inequality.

x	y
0	
	0

E) Graph the 2 boundary lines and shade.



F) Identify 2 solutions (2 ordered pairs) of this system. (,) (,)

G) What do these solutions mean in this situation?

H) Algebraically show that one of your ordered pairs from Question F is a solution.

7.9 Worksheet

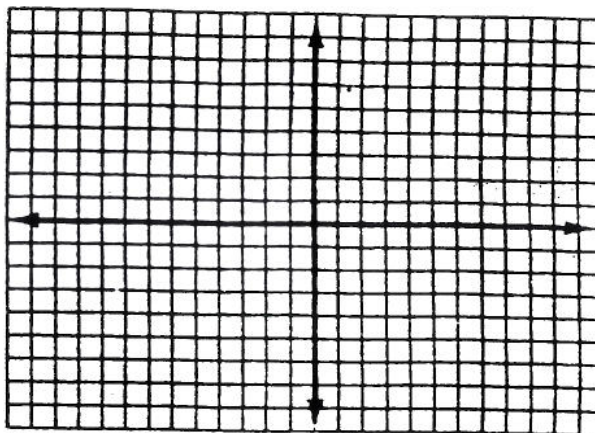
Graphing Systems of Inequalities

Name: _____

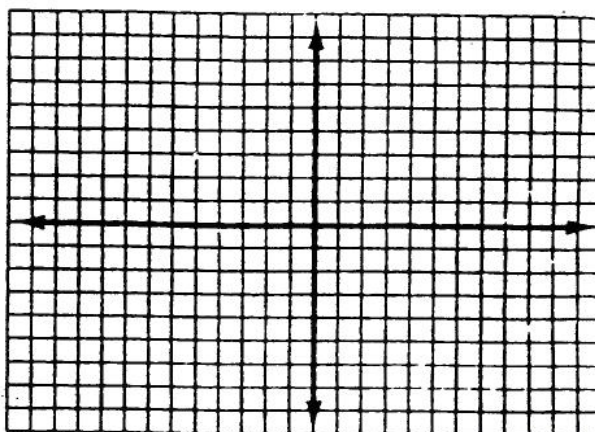
Date: _____ Hour: _____

Graph the solution to each system of inequalities.

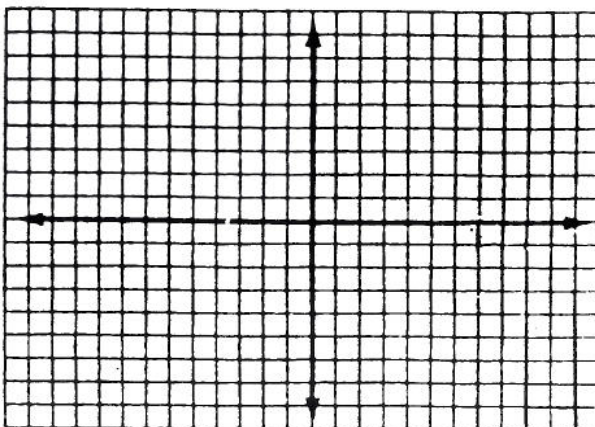
$$1. \begin{cases} y \leq 2x - 4 \\ y > \frac{1}{2}x - 5 \end{cases}$$



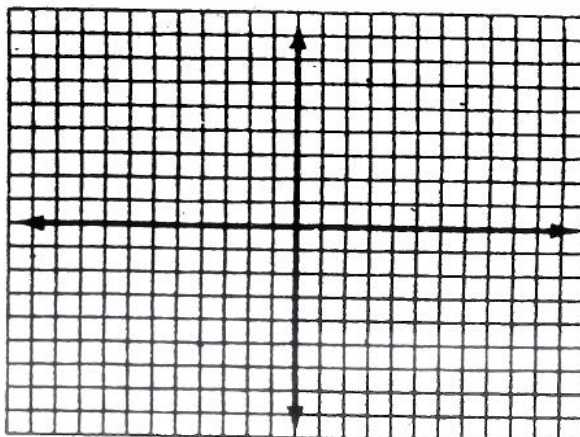
$$2. \begin{cases} y < x + 1 \\ y > -x + 5 \end{cases}$$



$$3. \begin{cases} y < -3x + 4 \\ y > -x + 1 \end{cases}$$



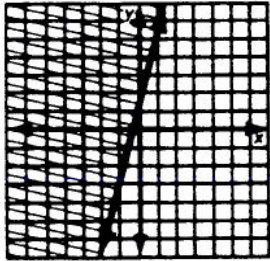
$$4. \begin{cases} y > -x + 2 \\ y > x + 1 \end{cases}$$



To decode the Chinese proverb below:

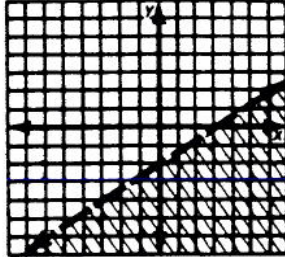
- First match each graph with one of the inequalities in the Decoder.
- Then cross out each box containing an answer in the Decoder.
- The words in the remaining boxes spell out the proverb.

1. $y \geq 4x + 1$



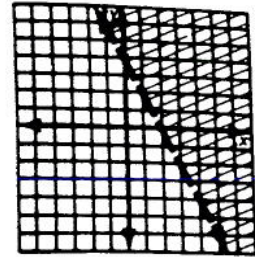
$m = 4$
 $b = 1$

2. _____



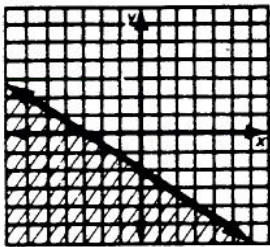
$m = \frac{2}{3}$
 $b = -2$

3. _____



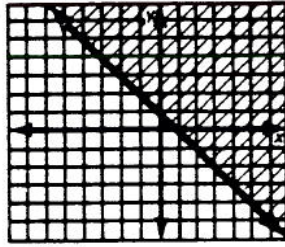
$m = -2$
 $b = 4$

4. _____



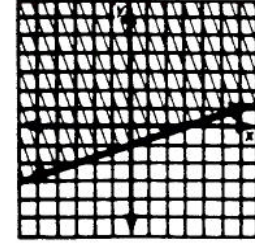
$m = -\frac{2}{3}$
 $b = -2$

5. _____



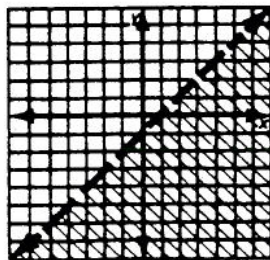
$m = -1$
 $b = 1$

6. _____



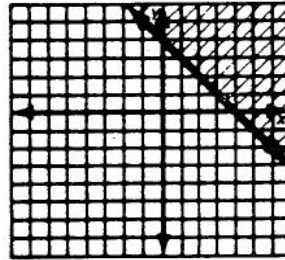
$m = \frac{1}{3}$
 $b = -1$

7. _____



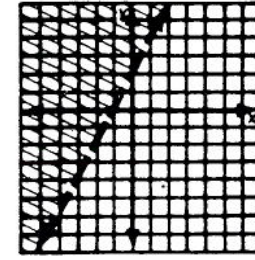
$m = 1$
 $b = -1$

8. _____



$m = -1$
 $b = 4$

9. _____



$m = 2$
 $b = 2$

DECODER

$y \leq -2x + 4$ A WISE	$y \geq 4x + 1$ MAN	$y \leq 2x + 2$ PERSON	$y > -2x + 4$ WHO
$y \leq \frac{-2}{3}x - 2$ KNOWS	$y < 2x + 2$ WILL MAKE	$y \geq -x + 1$ CAN FIND	$y \geq \frac{1}{3}x - 1$ WHEN TO
$y < x - 1$ ASK FOR	$y < x + 4$ MORE	$y > 2x + 2$ THE WAY	$y > \frac{2}{3}x - 2$ OPPORTUNITIES
$y \leq 4x + 1$ THAN	$y < \frac{2}{3}x - 2$ TO FIND	$y \geq \frac{1}{3}x + 1$ HE FINDS	$y \geq -x + 4$ KNOWLEDGE