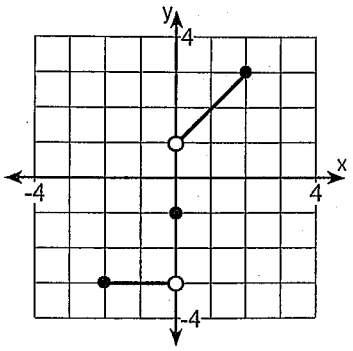
Name:_____

Algebra 1B

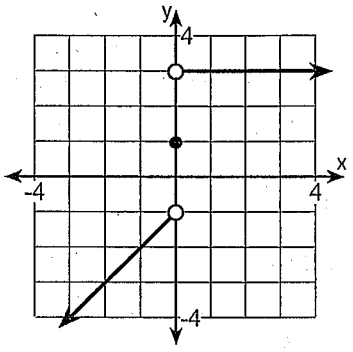
Chapter 4 Unit Review

1) Which one of the following graphs is the graph of $f(x) = \begin{cases} x - 1 & \text{if } -2 \le x < 0 \\ 1 & \text{if } x = 0 \\ 3 & \text{if } 0 < x \le 2 \end{cases}$?

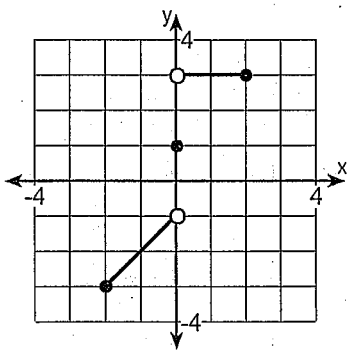
A)



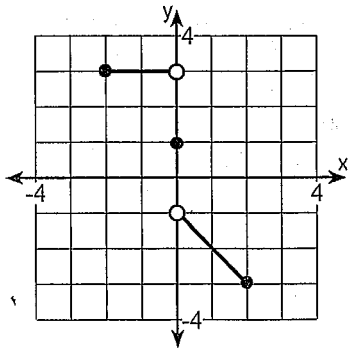
B)



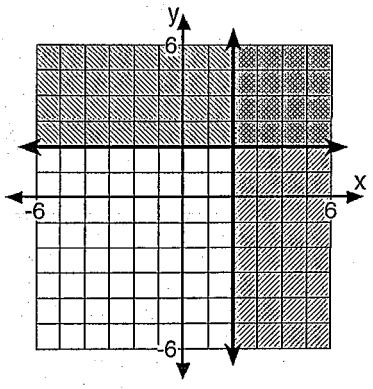
C)



D)

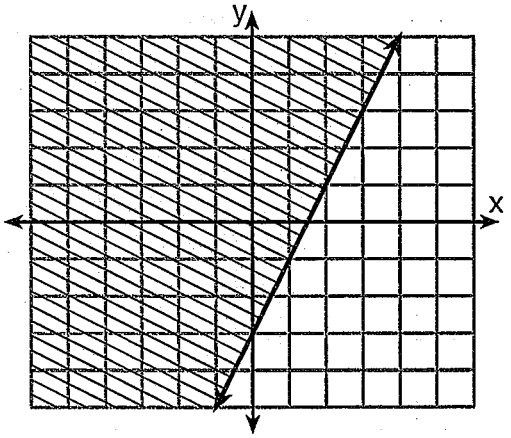


2) Which system of inequalities represents the shaded area in the graph below?



A) $y \le 2$ and $x \ge 2$
C) $y \ge 2$ and $x \le 2$
B) $y \ge 2$ and $x \ge 2$
D) $y \le 2$ and $x \le 2$

3) Which one of the following inequalities is represented by the graph below?

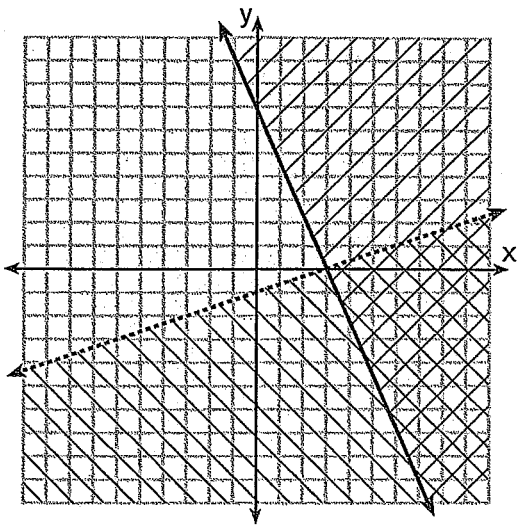


A) $y \le 2x - 3$
C) $y \le -3x + 2$
B) $y \ge -3x + 2$
D) $y \ge 2x - 3$

4) Joy wants to buy strawberries and raspberries to bring to a party. Strawberries cost \$1.60 per pound and raspberries cost \$1.75 per pound. If she only has \$10 to spend on berries, which inequality represents the situation where she buys x pounds of strawberries and y pounds of raspberries?

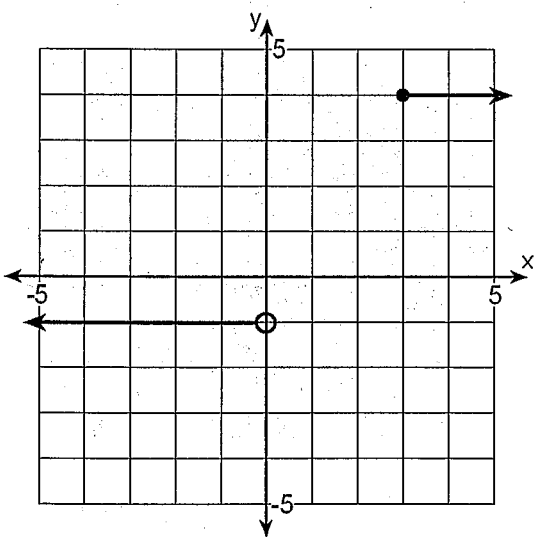
A) $1.60x + 1.75y \le 10$
C) $1.75x + 1.60y \ge 10$
B) $1.60x + 1.75y \ge 10$
D) $1.75x + 1.60y \le 10$

5) What is one point that lies in the solution set of the system of inequalities graphed below?



A) (−3,5) B) (7,0) C) (0,7) D) (3,0)

6) Which one of the following describes the graph shown?



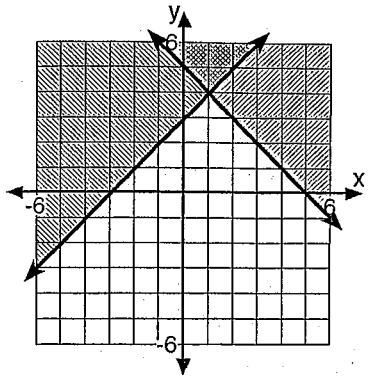
A) $f(x)=\begin{cases} x-1 & \text{if } x<0 \\ x+4 & \text{if } x\geq 3 \end{cases}$

B) $f(x)=\begin{cases} 0 & \text{if } x>-1 \\ 3 & \text{if } x\leq 4 \end{cases}$

C) $f(x)=\begin{cases} -1 & \text{if } y>0 \\ 4 & \text{if } y\leq 3 \end{cases}$

D) $f(x)=\begin{cases} -1 & \text{if } x<0 \\ 4 & \text{if } x\geq 3 \end{cases}$

7) Which system of inequalities represents the shaded area in the graph below?



A) $y \geq x + 3$ and $y \leq -x + 5$

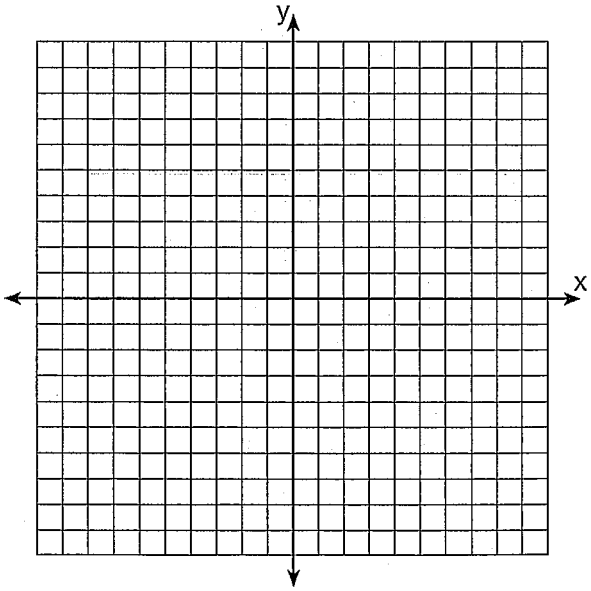
B) $y \leq x + 3$ and $y \geq -x + 5$

C) $y \geq x + 3$ and $y \geq -x + 5$

D) $y \leq x + 3$ and $y \leq -x + 5$

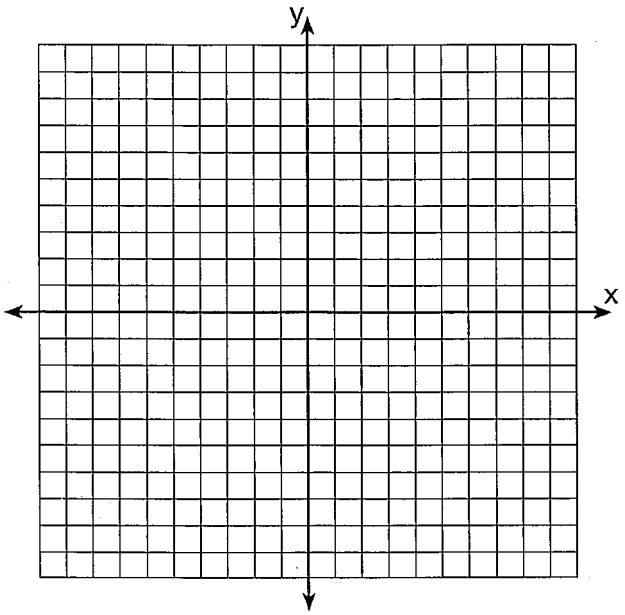
8) On the set of axes below, graph the piecewise function:

$$f(x) = \begin{cases} -\frac{1}{2}x, & x<2 \\ x, & x\geq 2 \end{cases}$$



9) (**a**) On the set of axes below, graph the following system of inequalities:

$2x + y \geq 8$
$y - 5 < 3x$

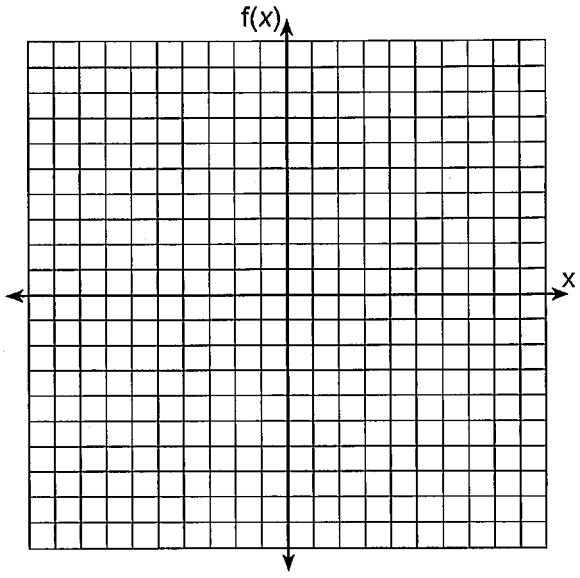


(**b**) Determine if the point (1,8) is in the solution set. [*Explain your answer.*]

Question 10 refers to the following:

Graph the given absolute value function on a coordinate grid. State the domain and the range of the function.

10) $f(x) = |x + 1| + 3$

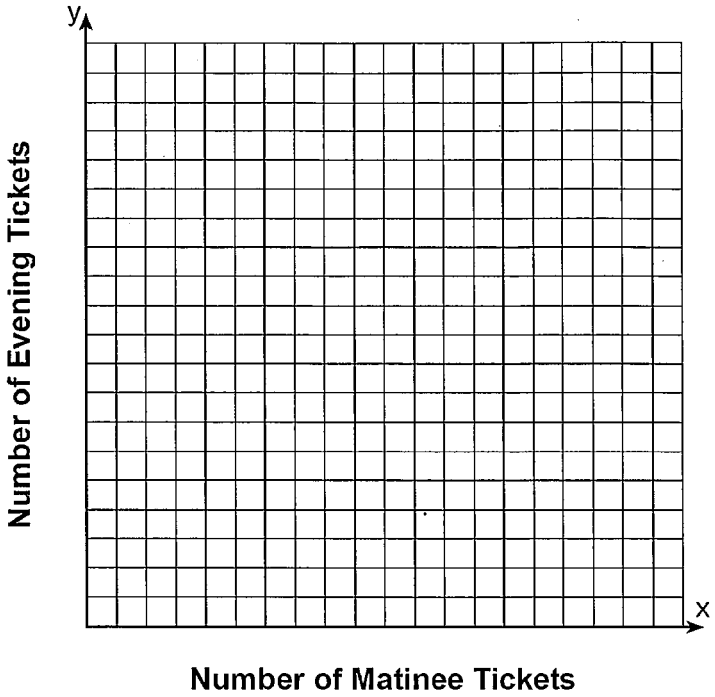


11) Does the point (5,3) belong to the graph of $y \leq x + 2$? [*Explain why or why not.*]

12) Myranda received a movie gift card for $100 to her local theater. Matinee tickets cost $7.50 each and evening tickets cost $12.50 each.

(**a**) If *x* represents the number of matinee tickets she could purchase, and *y* represents the number of evening tickets she could purchase, write an inequality that represents *all* the possible ways Myranda could spend her gift card on movies at the theater.

(**b**) On the set of axes below, graph this inequality.



(**c**) What is the maximum number of matinee tickets Myranda could purchase with her gift card? [*Explain your answer.*]