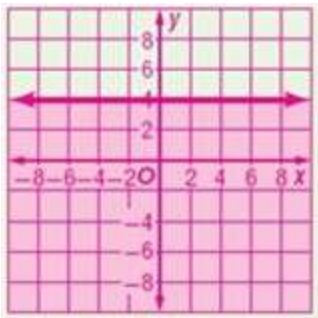


2-7 Graphing Linear and Absolute Value Inequalities

Graph each inequality.

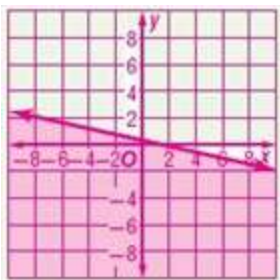
1. $y \leq 4$

ANSWER:



3. $x + 4y \leq 2$

ANSWER:



5. **CCSS MODELING** Gregg needs to buy gas and oil for his car. Gas costs \$3.45 a gallon, and oil costs \$2.41 a quart. He has \$50 to spend.

a. Write an inequality to represent the situation, where g is the number of gallons of gas he buys and q is the number of quarts of oil.

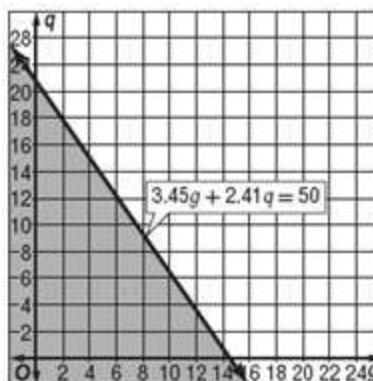
b. Graph the inequality.

c. Can Gregg buy 10 gallons of gasoline and 8 quarts of oil? Explain.

ANSWER:

a. $3.45g + 2.41q \leq 50$

b.

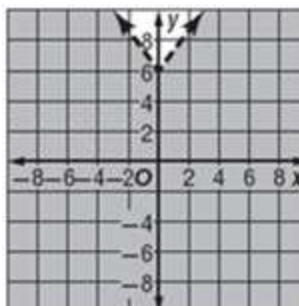


c. No; (10, 8) is not in the shaded region.

Graph each inequality.

7. $y - 6 < |x|$

ANSWER:

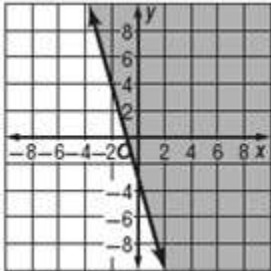


2-7 Graphing Linear and Absolute Value Inequalities

Graph each inequality.

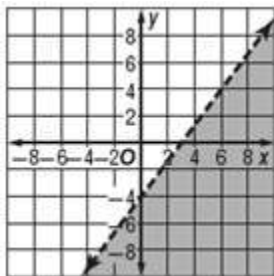
9. $y \geq -3x - 2$

ANSWER:



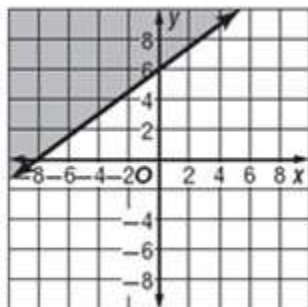
11. $4x - 3y > 12$

ANSWER:



13. $y \geq \frac{3}{4}x + 6$

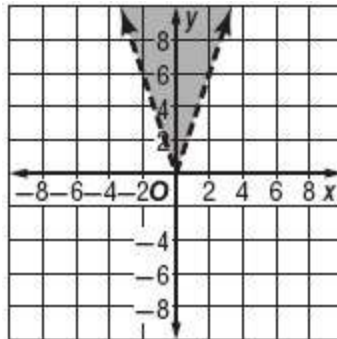
ANSWER:



Graph each inequality.

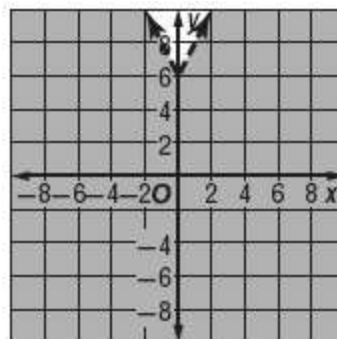
15. $y > |3x|$

ANSWER:



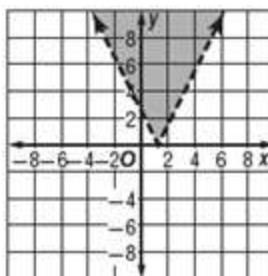
17. $y - 6 < |-2x|$

ANSWER:



19. $2y > |4x - 5|$

ANSWER:



2-7 Graphing Linear and Absolute Value Inequalities

21. **SCHOOL DANCE** Carlos estimates that he will need to earn at least \$700 to take his girlfriend to the prom. Carlos works two jobs as shown in the table.

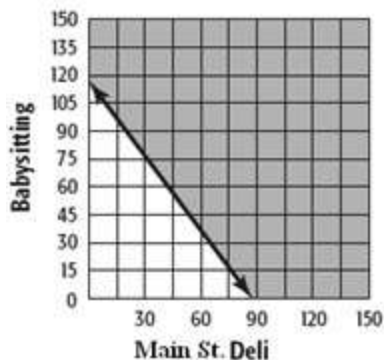
- Write an inequality to represent this situation.
- Graph the inequality.
- Will he make enough working 50 hours at each job?



Job	Pay
Main St. Deli	\$8 an hour
Babysitting	\$6 an hour

ANSWER:

- $8a + 6b \geq 700$
-

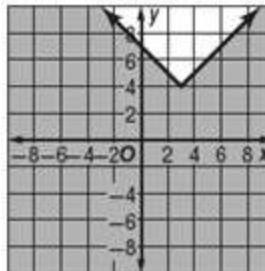


- yes

Graph each inequality.

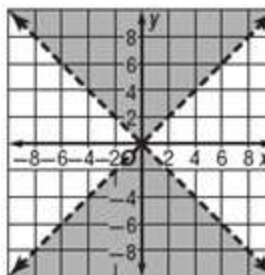
23. $y \leq |x - 3| + 4$

ANSWER:



25. $|y| > |x|$

ANSWER:



27. $|x + 3y| \geq -2$

ANSWER:

all ordered pairs of real numbers (The graph would be shaded everywhere.)

2-7 Graphing Linear and Absolute Value Inequalities

29. **GIFT CARDS** Susan received a gift card from an electronics store for \$400. She wants to spend the money on DVDs, which cost \$20 each, and CDs, which cost \$15 each.

a. Let d equal the number of DVDs, and let c equal the number of CDs. Write an inequality that shows the possible combinations of DVDs and CDs that Susan can purchase.

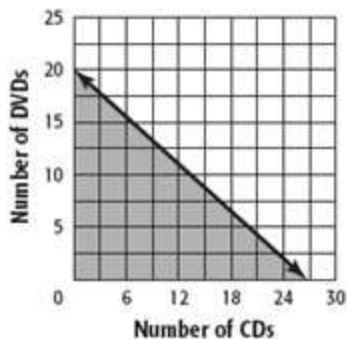
b. Graph the inequality.

c. Give three possible solutions for the number of DVDs and CDs she can buy.

ANSWER:

a. $20d + 15c \leq 400$

b.

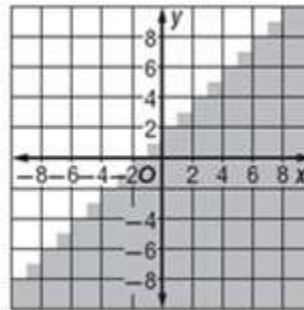


c. Sample answer: 18 CDs and 5 DVDs, 12 CDs and 10 DVDs, or 6 CDs and 15 DVDs

Graph each inequality.

31. $y < [x + 2]$

ANSWER:



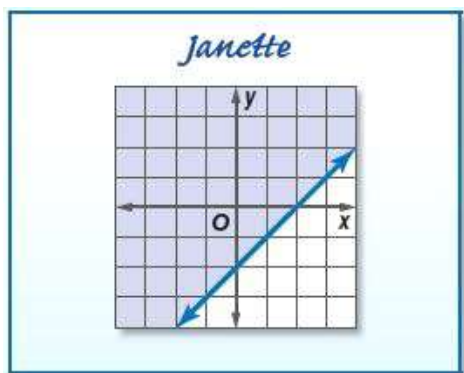
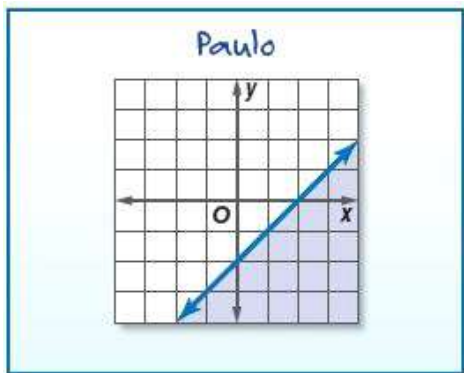
33. **OPEN ENDED** Create an absolute value inequality in which none of the possible solutions fall in the second or third quadrant.

ANSWER:

Sample answer: $|y| < x$

2-7 Graphing Linear and Absolute Value Inequalities

35. **ERROR ANALYSIS** Paulo and Janette are graphing $x - y \geq 2$. Is either of them correct? Explain your reasoning.



ANSWER:

Paulo; $x - y \geq 2$ can be written as $y \leq x - 2$.

37. **WRITING IN MATH** Describe a situation in which there are no solutions to an absolute value inequality. Explain your reasoning.

ANSWER:

Sample answer: One possibility is when $|y| < 0$. In order for there to be a solution, the absolute value of y will need to be less than 0, and, by definition of absolute value, this is impossible.

39. Which of the following sets of numbers represents an infinite set?

A $\{2, 4, 6\}$

B $\{\text{whole numbers between } -50 \text{ and } 50\}$

C $\{\text{integers}\}$

D $\left\{\frac{1}{2}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}\right\}$

ANSWER:

C

41. **ACT/SAT** For which function is the range $\{y \mid y \leq 0\}$?

F $f(x) = -x$

G $f(x) = \lceil x \rceil$

H $f(x) = \lfloor -x \rfloor$

J $f(x) = |x|$

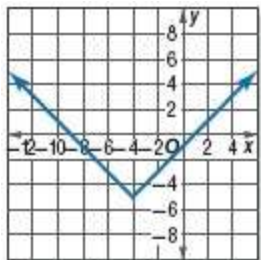
K $f(x) = -|x|$

ANSWER:

K

2-7 Graphing Linear and Absolute Value Inequalities

Write an equation for each graph.



43.

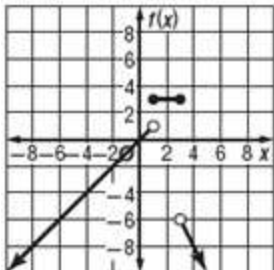
ANSWER:

$$y = |x + 4| - 5$$

Graph each function.

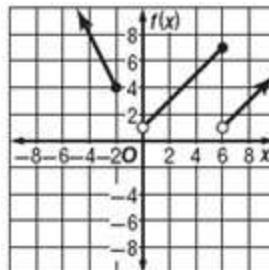
$$45. f(x) = \begin{cases} x & \text{if } x < 1 \\ 3 & \text{if } 1 \leq x \leq 3 \\ -2x & \text{if } x > 3 \end{cases}$$

ANSWER:



$$47. f(x) = \begin{cases} -2x & \text{if } x \leq -2 \\ x + 1 & \text{if } 0 < x \leq 6 \\ x - 5 & \text{if } x > 6 \end{cases}$$

ANSWER:



Write each equation in standard form. Identify A , B , and C .

$$49. 12y + x = -3y + 5x - 6$$

ANSWER:

$$4x - 15y = 6;$$

$$A = 4,$$

$$B = -15,$$

$$C = 6$$

51. **TENNIS** Sixteen players signed up for tennis lessons. The instructor plans to use 50 tennis balls for every player and have 200 extra. How many tennis balls are needed for the lessons?

ANSWER:

$$1000$$

Multiply.

$$53. (6x + 5)(-x - 3)$$

ANSWER:

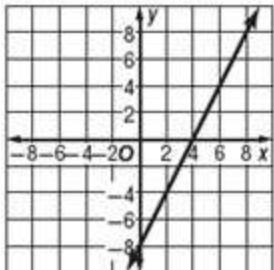
$$-6x^2 - 23x - 15$$

2-7 Graphing Linear and Absolute Value Inequalities

Graph each linear equation.

55. $y = 2x - 8$

ANSWER:



57. $3y - 4x = 24$

ANSWER:

