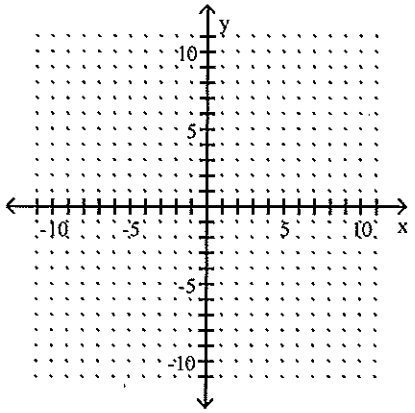
Exam Chapter 5 practice test #1

Name_____

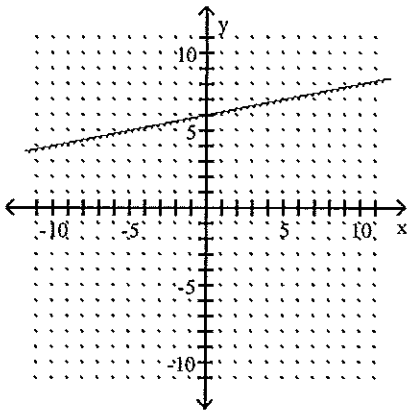
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine the slope and the y-intercept. Use the slope and the y-intercept to graph the equation.

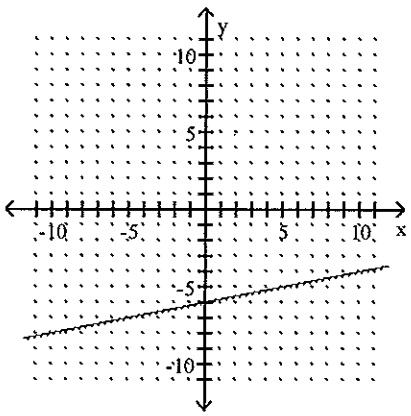
1) $5x + y - 6 = 0$ 1) _____



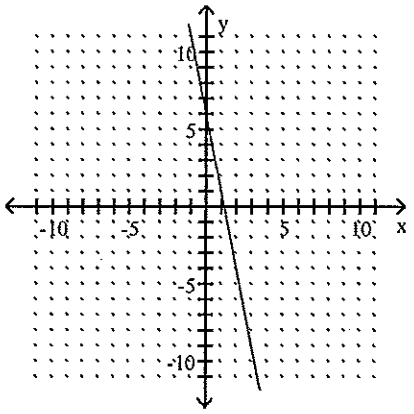
A) slope: $\frac{1}{5}$; y-intercept: (0, 6)



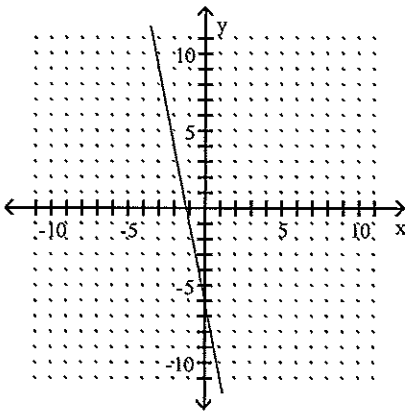
B) slope: $\frac{1}{5}$; y-intercept: (0, -6)



C) slope: -5; y-intercept: (0, 6)

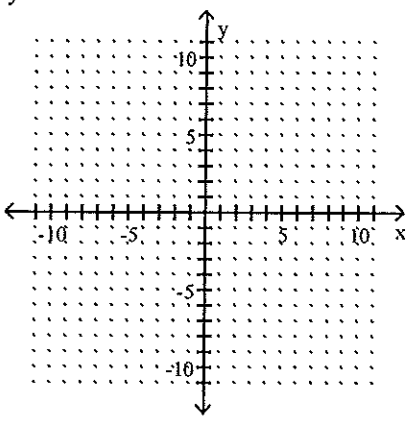


D) slope: -5; y-intercept: (0, -6)

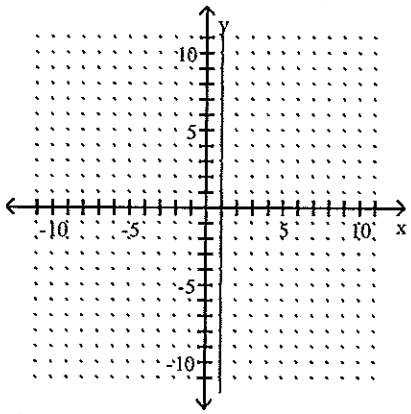


2) y = 1

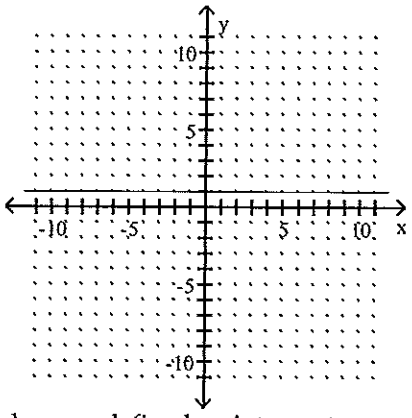
2) _____



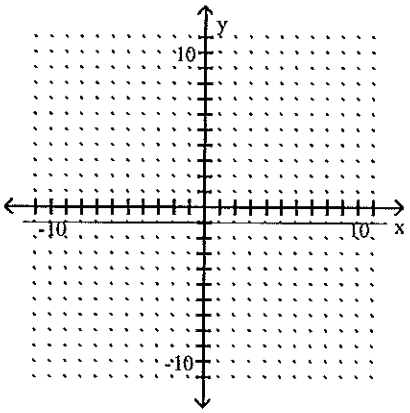
A) slope: undefined; y-intercept: none



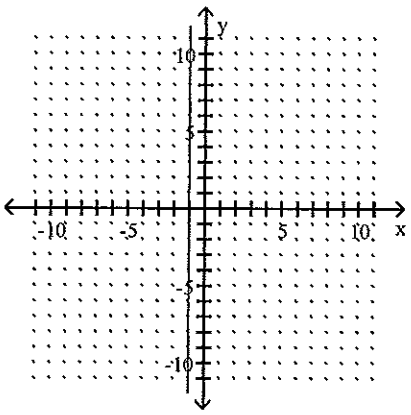
B) slope: 0; y-intercept: (0, 1)



C) slope: 0; y-intercept: (0, -1)

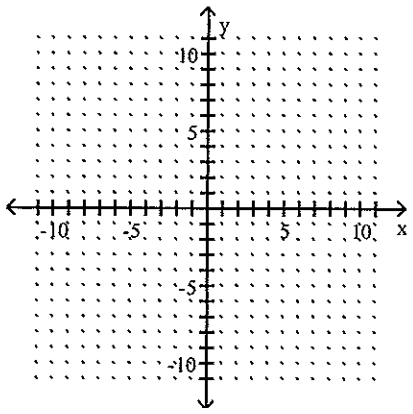


D) slope: undefined; y-intercept: none

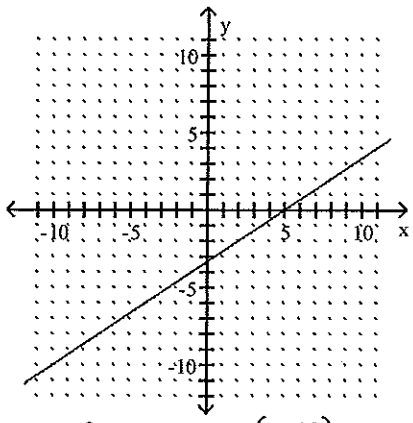


3) 6x - 7y + 5 = 4x - 4y - 5

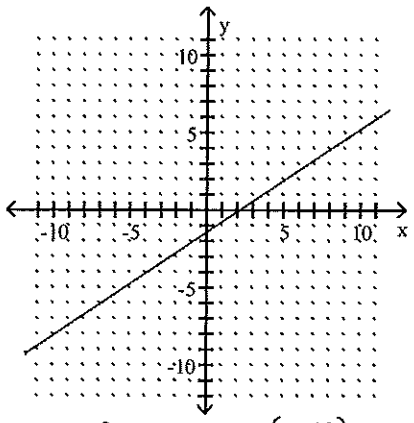
3) _____



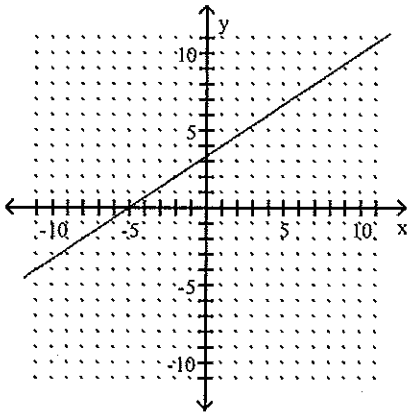
A) slope: $\frac{2}{3}$; y-intercept: $\left(0, -\frac{10}{3}\right)$



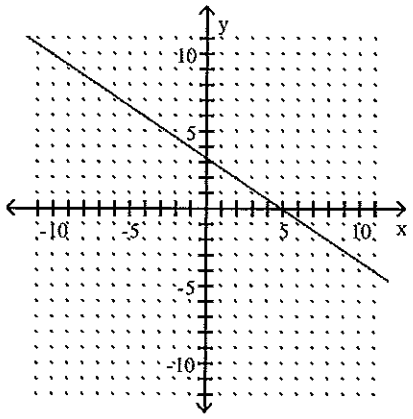
B) slope: $\frac{2}{3}$; y-intercept: $\left(0, \frac{10}{7}\right)$



C) slope: $\frac{2}{3}$; y-intercept: $\left(0, \frac{10}{3}\right)$

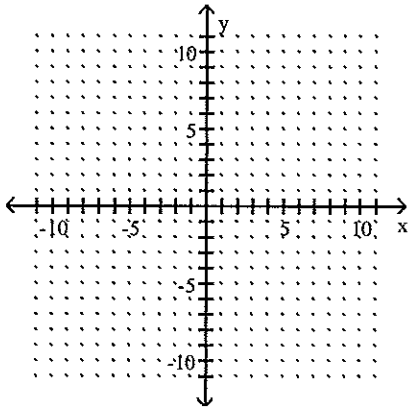


D) slope: $-\frac{2}{3}$; y-intercept: $\left(0, \frac{10}{3}\right)$

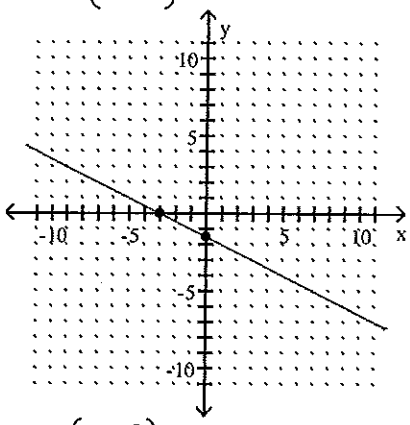


Find the x-intercept and y-intercept, then graph the equation.

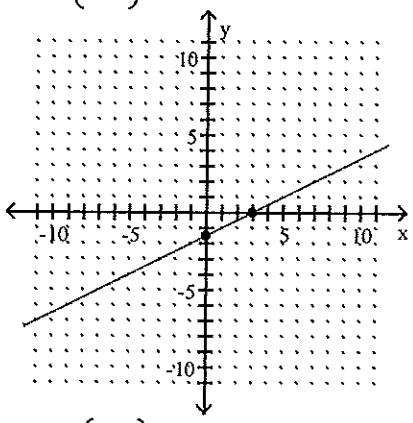
4) $4y - 2x = -6$ 4) _____



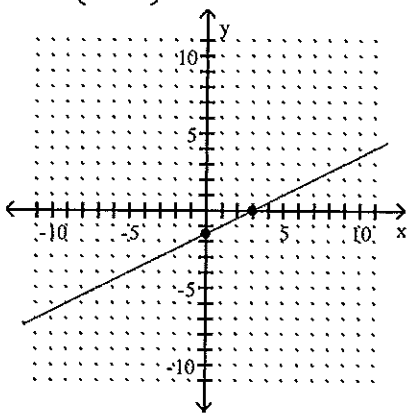
A) $(-3, 0), \left(0, -\frac{3}{2}\right)$,



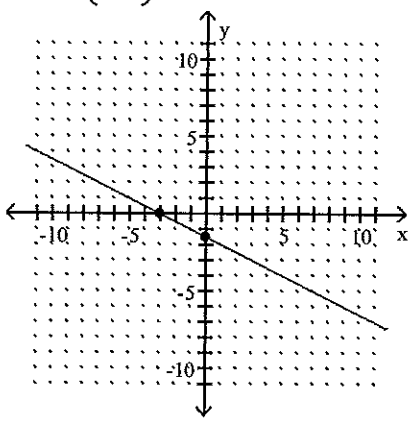
B) $(3, 0), \left(0, \frac{3}{2}\right)$



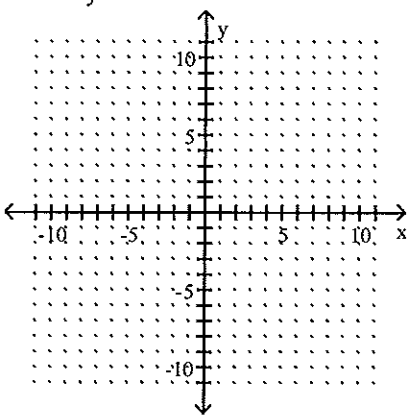
C) $(3, 0), \left(0, -\frac{3}{2}\right)$



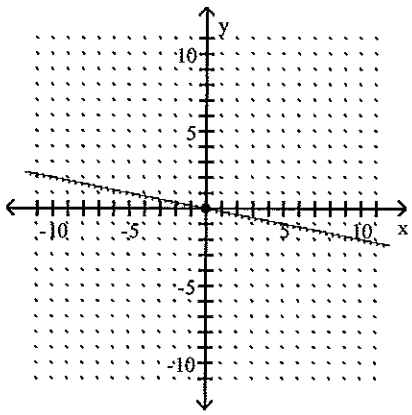
D) $(-3, 0), \left(0, \frac{3}{2}\right)$,



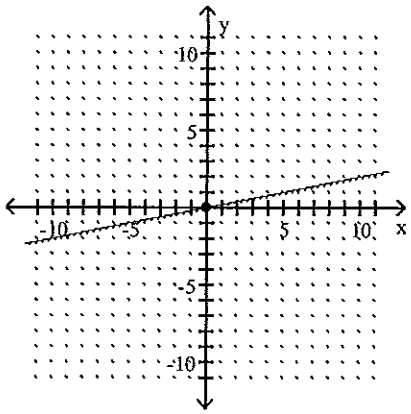
5) $6x - 30y = 0$ 5) _____



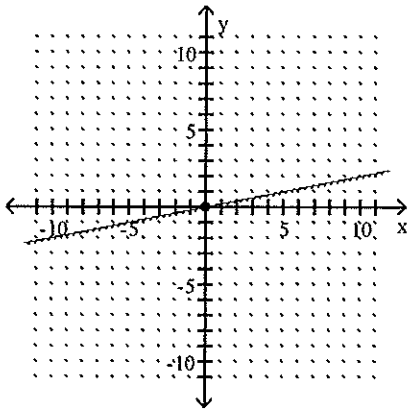
A) (0, 0), (0, −6)



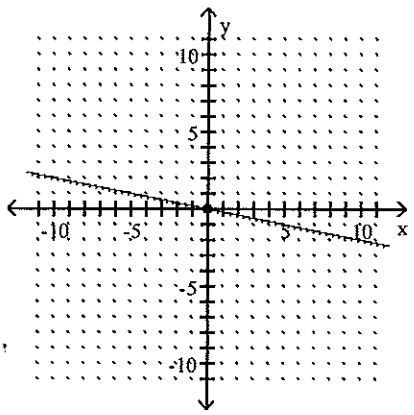
B) (0, 0), (0, 6)



C) (0, 0)



D) (0, 0)



Determine whether the relation is a function.

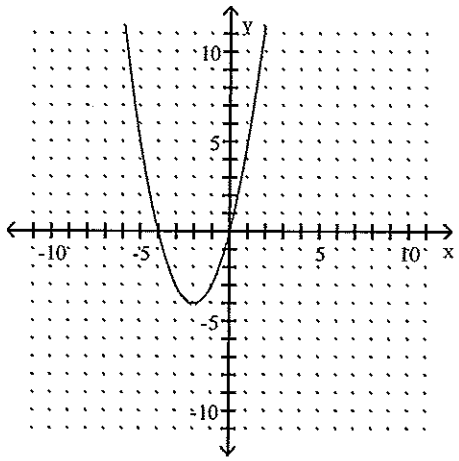
6) $y = 2x + 1$ 6) _____

A) function

B) not a function

Use the graph of the function to determine the function's domain and range.

7) 7) _____



A) domain: all real numbers; range: $y \leq -4$
B) domain: all real numbers; range: all real numbers
C) domain: all real numbers; range: $y \geq -4$
D) domain: $x \geq -4$; range: all real numbers

Evaluate the function at the given value of x.

8) $f(x) = 2x - 1$, $f(2)$ 8) _____

A) 2 B) 5 C) 3 D) 1

9) $f(x) = 4x - 4$, $g(a - 1)$ 9) _____

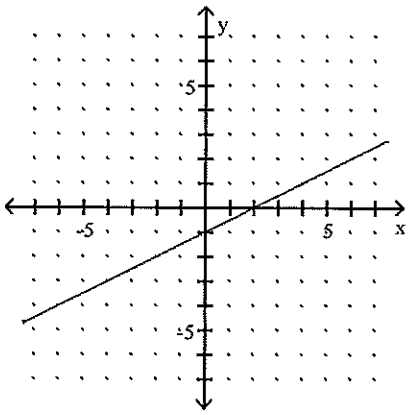
A) $4a + 1$ B) $4a - 8$ C) $\frac{1}{4}a - 4$ D) $4a - 4$

For the given function, find the value of x that corresponds to the given value of f(x).

10) $f(x) = -3x + 4$, $f(x) = 7.9$ 10) _____

A) 1.3 B) -2.3 C) -1.3 D) 2.3

A graph of the function f is sketched in the figure below. Use the graph to find the indicated values.



11) Find f(-4) 11) _____

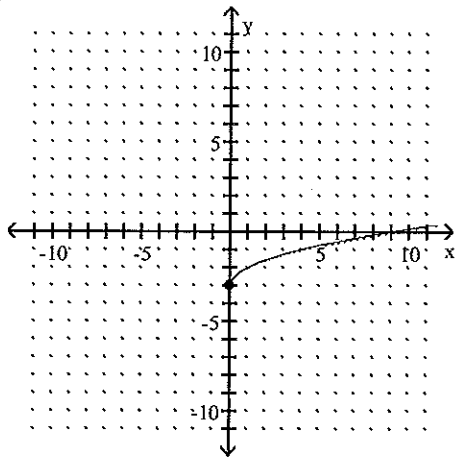
A) 3 B) -12 C) -6 D) -3

12) Find x when f(x) = -3 12) _____

A) 3 B) -12 C) -4 D) -6

Find the domain and the range of the relation.

13) 13) _____



A) domain: $x \geq 0$; range: all real numbers
B) domain: all real numbers; range: $y \geq -3$
C) domain: $x \geq 0$; range: $y \geq 0$
D) domain: $x \geq 0$; range: $y \geq -3$

Find the x-intercept and y-intercept of the function.

14) f(x) = 2x - 8 14) _____

A) x-intercept: (4, 0)
y-intercept: (0, -8)
B) x-intercept: (-4, 0)
y-intercept: (0, 8)
C) x-intercept: (8, 0)
y-intercept: (0, -4)
D) x-intercept: (-8, 0)
y-intercept: (0, 4)

Find an equation of the line that has the given slope and contains the given point. If possible, write your equation in slope-intercept form.

15) m = -4; (8, 6) 15) _____

A) y = -4x - 38 B) x = -4y + 38 C) y = -4x + 38 D) x = -4y - 38

Find the equation of the line that passes through the two given points. If possible, write your equation in slope-intercept form.

16) (2, 5) and (-3, 1) 16) _____

A) $y = x + \frac{17}{5}$ B) $y = -x + \frac{17}{5}$ C) $y = -\frac{4}{5}x + \frac{17}{5}$ D) $y = \frac{4}{5}x + \frac{17}{5}$

Find the approximate equation of the line that passes through the two points. Write the equation in slope-intercept form. Round the slope and the constant term to two decimal places.

17) (2.2, 5.1) and (4.1, 3.4) 17) _____

A) y = 0.89x + 3.13
B) y = -1.12x + 7.56
C) y = 2.32x + 0.83
D) y = -0.89x + 7.07

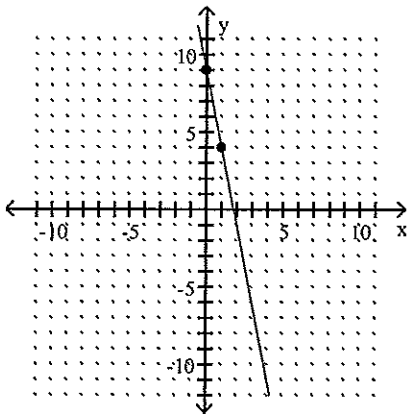
Find an equation of the line that contains the given point and is perpendicular to the given line. If possible, write your equation in slope-intercept form.

18) $(-4, 3)$, $y = 4x + 2$ 18) _____

A) $y = -\frac{1}{4}x + 2$ B) $y = 4x + 2$ C) $y = -4x + 2$ D) $y = \frac{1}{4}x + 2$

Find an equation for the line.

19) 19) _____

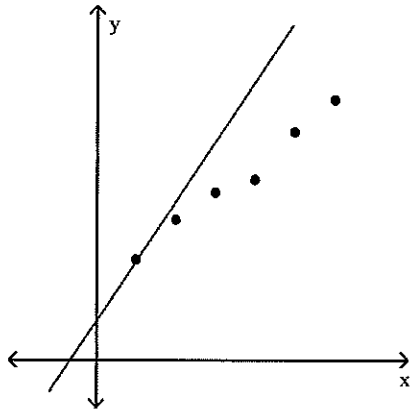


A) $y = -5x + 9$ B) $y = 5x - 9$ C) $y = 9x - 5$ D) $y = -9x - 5$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

20) Consider the graph of the data and the model $y = mx + b$. Sketch the graph of a linear model that better describes the data and then explain how you would adjust the slope and the y-intercept of the original model so that it would better describe the data. 20) _____



MULTIPLE CHOICE. **Choose the one alternative that best completes the statement or answers the question.**

21) The average per-person annual consumption of hot dogs is shown in the table. Let C be the average per-person consumption of hot dogs at t years since 1990. Find an equation of a linear model to describe the data. 21) _____

Year	Annual Consumption (Hot Dogs per person)
1993	20.2
1995	23.8
1998	26.9
2001	29.7
2005	32.1

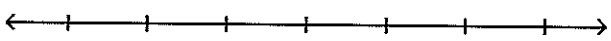
A) $C = t - 18.02$
B) $C = 0.97t - 1824.59$
C) $C = 3t + 17.6$
D) $C = 0.97t + 18.41$

22) Persons taking a 30-hour review course to prepare for a standardized exam average a score of 620 on that exam. Persons taking a 70-hour review course average a score of 785. Find a linear equation which fits this data, and use this equation to predict an average score for persons taking a 43-hour review course. Round your answer to the tenths place. 22) _____

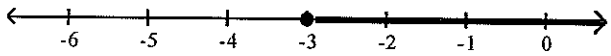
A) 666.3 B) 677.8 C) 673.6 D) 687.6

Solve the inequality and express the solution set in interval notation. Graph the solution set on the real number line.

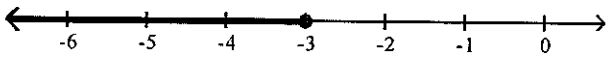
23) $9x + 18 > 3(2x + 3)$ 23) _____



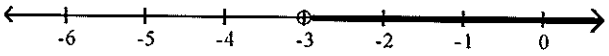
A) $x \geq -3$; $[-3, \infty)$



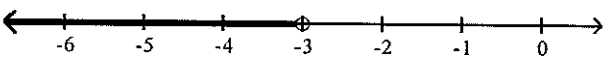
B) $x \leq -3$; $(-\infty, -3]$



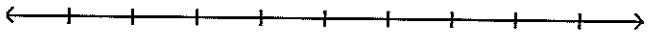
C) $x > -3$; $(-3, \infty)$



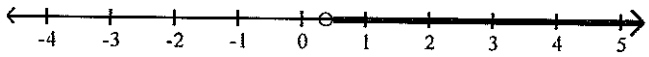
D) $x < -3$; $(-\infty, -3)$



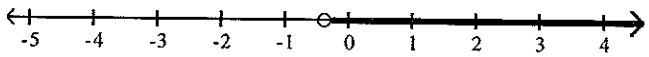
24) $\frac{2}{3} - \frac{8}{9}x < 1$ 24) _____



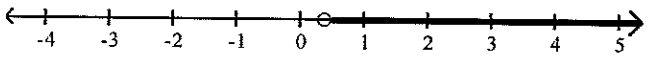
A) $x > \frac{3}{8}$; $\left(\frac{3}{8}, \infty\right)$



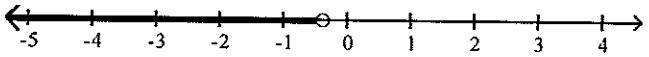
B) $x > -\frac{3}{8}$; $\left(-\frac{3}{8}, \infty\right)$



C) $x > \frac{3}{8}$; $\left(\frac{3}{8}, \infty\right)$

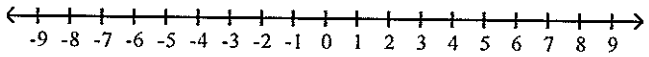


D) $x < -\frac{3}{8}$; $\left(-\infty, -\frac{3}{8}\right)$

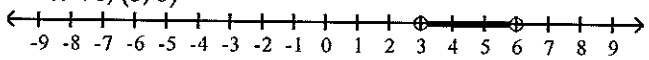


Solve the inequality. Describe the solution set as an inequality, in interval notation, and in a graph.

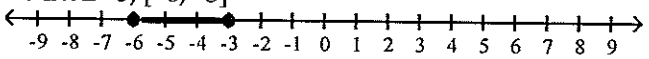
25) $16 \le 4x + 4 \le 28$ 25) _____



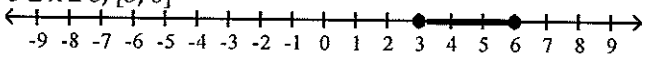
A) $3 < x < 6$; (3, 6)



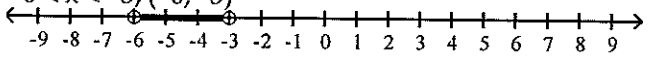
B) $-6 \le x \le -3$; [-6, -3]



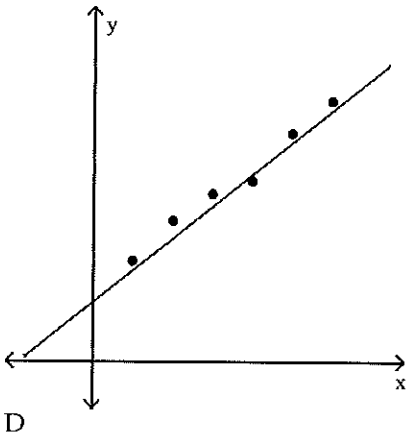
C) $3 \le x \le 6$; [3, 6]



D) $-6 < x < -3$; (-6, -3)



1) C
2) B
3) C
4) C
5) C
6) A
7) C
8) C
9) B
10) C
11) D
12) C
13) D
14) A
15) C
16) D
17) D
18) A
19) A
20) Decrease the slope and raise the y-intercept. The improved model is sketched in the figure below.



21) D
22) C
23) C
24) B
25) C