

Algebra I  
Unit 6 Inequalities REVIEW

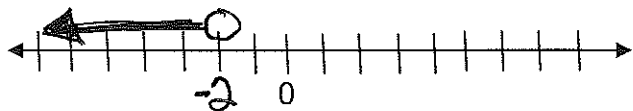
Name \_\_\_\_\_  
Period \_\_\_\_\_ Date \_\_\_\_\_

1) Fill in the chart with the symbols  $<$ ,  $>$ ,  $\leq$ , or  $\geq$ .

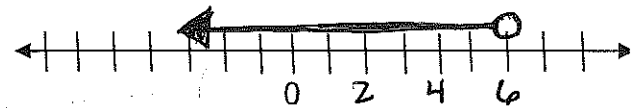
words	symbol	words	symbol
At least	$\geq$	Less than ; under below	$<$
At most	$\leq$	Less than or equal to	$\leq$
Fewer than	$<$	More than ; above over	$>$
Greater than	$>$	No less than	$\geq$
Greater than or equal to	$\geq$	No more than	$\leq$

For #'s 2 - 6, SOLVE each inequality, **BOX** answers and **GRAPH** the solution on the number line.

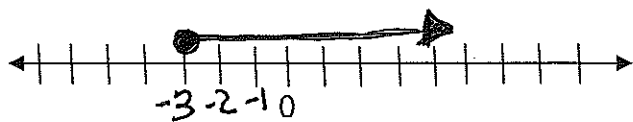
2) 
$$\begin{array}{r} 10 - 6x > 22 \\ -10 \quad -10 \\ \hline -6x > 12 \\ \div -6 \quad \div -6 \quad \star \text{ flip} \\ \hline x < -2 \end{array}$$
*open circle  
shade below*



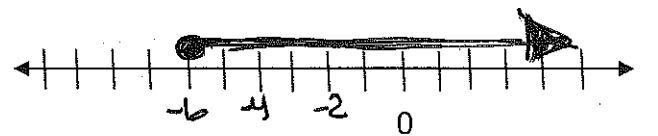
3) 
$$\begin{array}{r} 6 > 6x - 3(x+4) \quad \text{Distribute} \\ 6 > 6x - 3x - 12 \quad \text{CLT} \\ 6 > 3x - 12 \quad \text{NOW SOLVE 2-STEP} \\ +12 \quad +12 \\ \hline 18 > 3x \\ \div 3 \quad \div 3 \\ \hline 6 > x \quad \text{or } x < 6 \end{array}$$



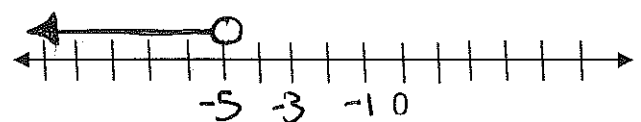
4) 
$$\begin{array}{r} -3x \leq 9 \\ \div 3 \quad \div 3 \quad \star \text{ flip} \\ \hline x \geq -3 \end{array}$$



5) 
$$\begin{array}{r} \frac{x}{3} \geq -2 \\ (\cdot 3) \quad (\cdot 3) \\ \hline x \geq -6 \end{array}$$
*closed circle  
shade above*



6) 
$$\begin{array}{r} 12x + 15 < 5 + 10x \\ -10x \quad -10x \\ \hline 2x + 15 < 5 \\ -15 \quad -15 \\ \hline 2x < -10 \\ \div 2 \quad \div 2 \\ \hline x < -5 \end{array}$$
*open circle  
shade below*



For #'s 7 - 9, <sup>write</sup> SET UP an inequality. You DO NOT need to solve it.

- 7) The difference of a number and 8 is less than 10.

$$X - 8 < 10$$

- 8) The sum of 2 times a number and 5 is greater than 25.

$$2X + 5 > 25$$

- 9) Three-fourths of a number is at least 36.

$$\frac{3}{4}X \geq 36$$

- 10) Which statement can be used to represent the inequality shown?

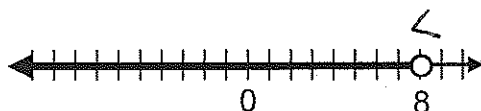


- a) I need \$4 for lunch  $X = 4$   
 b) I need no more than \$4 for lunch  $X \leq 4$   
 c) I need at most \$4 for lunch  $X \leq 4$   
 d) I need at least \$4 for lunch  $X \geq 4$

- 11) Write a scenario that can be represented by the inequality  $x < 20$ .

There were fewer than 20 cars in the parking lot.

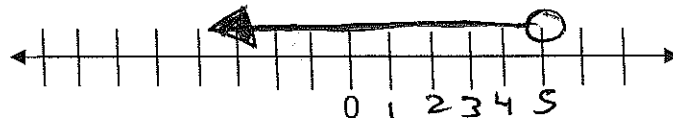
- 12) Write the inequality represented by the graph.



$$n < 8$$

- 13) Solve  $5a - 5 < 20$  and graph the solution.

$$\begin{array}{r} 5a - 5 < 20 \\ +5 \quad +5 \\ \hline 5a < 25 \\ \frac{5a}{5} < \frac{25}{5} \\ \hline a < 5 \end{array}$$



- A. Name a value that is a solution on the graph above. (Anything less than 5)

-1, 3, 1.8 etc.

- B. Name a value that is not a solution on the graph above. (Anything 5 and above)

5, 5.4, 12 etc.

14) It costs \$2 <sup>rate</sup> per hour to skate at the Frisco Mall. The video games there cost \$1 each to play. You have \$15 to spend on skating and video games. Write an inequality to show how many video games (g) you can play and how many hours (h) you can skate.

$$2h + g \leq 15$$

(1, 13) Possible solution  
means skate for 1 hour & play 13 games

15) An automobile repair shop charges a service fee of \$50 plus \$20 <sup>rate</sup> per hour for the mechanic's time. A customer receives an estimate of (at least \$150) for repairing his car. Which inequality can be used to represent this situation?  $\geq 50 +$

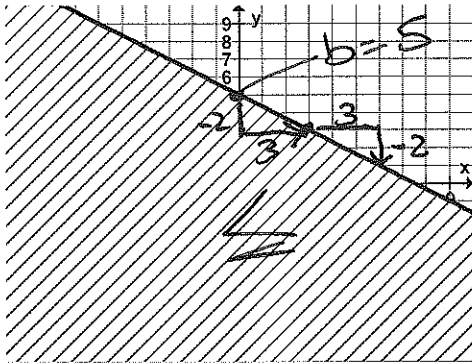
a)  $50 + 20x \leq 150$  <sup>wrong</sup>

c)  $50x + 20 \leq 150$  <sup>wrong</sup>

b)  $50 + 20x \geq 150$

d)  $50x + 20 \geq 150$   
50 was not the rate

16) Write the inequality shown in the graph below.

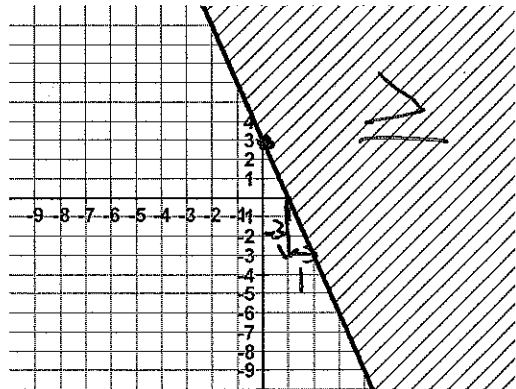


$$y \leq -\frac{2}{3}x + 5$$

$m = -\frac{2}{3}$   
 $b = 5$   
solid line  $\rightarrow$  equal to  
shaded below  $\rightarrow$  less than

17) Which equation is shown by the graph at the Right?

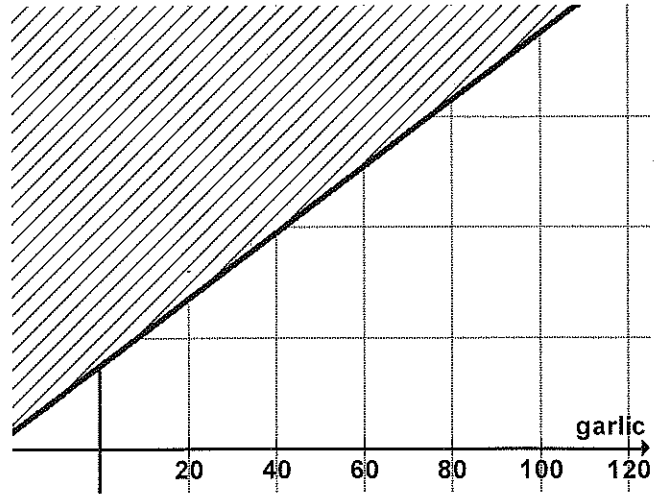
- A)  $y \geq 3x + 3$   
B)  $y \geq -1/3x + 3$   
C)  $y > -3x + 3$   
D)  $y < 3x + 3$
- should be negative slope  
shaded above  
NOT below



slope:  $\frac{\text{rise } \downarrow 3}{\text{run } \rightarrow 1} = -3$

$m: -3 \quad b = 3$

18) Each morning at his bagel shop, Sid makes bagels. The graph shows the relationship between the number of garlic bagels,  $g$ , and the number of plain bagels,  $p$ , he makes each morning. Which statement below does **NOT** satisfy this inequality relationship?



- A) Sid made 20 garlic bagels and 150 plain bagels
- B) Sid made 100 garlic bagels and 400 plain bagels
- C) Sid made 35 garlic bagels and 175 plain bagels
- D) Sid made 75 garlic bagels and 250 plain bagels**

19) Fido's vet has placed him on a diet; he is allowed no more than 1000 calories a day. Fido's dry dog food has 200 calories per cup, and his biscuits have 400 calories each. Which inequality could be used to find  $d$ , the number of cups of dry food, and  $b$ , the number of biscuits, that Fido is allowed to eat each day?

A.  $(200 + 400)(d + b) > 1000$  *wrong*

**B.  $200d + 400b \leq 1000$**  *not rates*

C.  $(d + 400)(b + 200) \leq 1000$

D.  $400d + 200b > 1000$  *wrong*

20) Gold must be no more than 2800°C to be in liquid form. Which inequality best represents the situation?

A)  $g \geq 2800$

B)  $g > 2800$

**C)  $g \leq 2800$**

D)  $g < 2800$