

Chapter 6 Practice Test (2022)

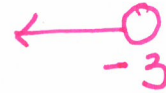
NOTE: 8 pts each unless otherwise stated

Draw a graph for each inequality. (2pts each)

1)  $2 \leq x \rightarrow x \geq 2$



2)  $-3 > x \rightarrow x < -3$



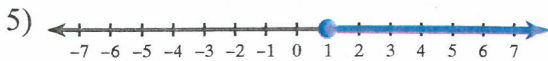
3)  $-9 \leq x \leq -5$



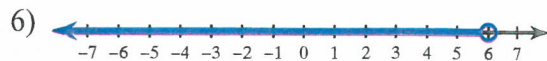
4)  $x > 5$  or  $x < 2$



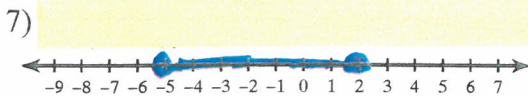
Write an inequality for each graph below the graph. Use the variable "X" and circle your answer. (2pts each)



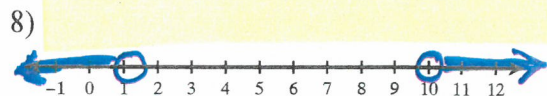
$x \geq 1$



$x < 6$



$-5 \leq x \leq 2$



$x < 1$  or  $x > 10$

9) (8pts) A park charges \$8 for a mat to go down a water slide. It costs \$2.50 for each ride down the slide. You have a \$30 allowance to spend at the park. How many slide rides can you do with your allowance?

KI: \$8 mat      \$2.50/slide      \$30 allowance

Define a Variable:  $x = \#$  of water slide rides

Write an inequality:  $8 + 2.50x \leq 30$

Solve and write answer in a sentence.

$$\begin{array}{r} 8 + 2.50x \leq 30 \\ -8 \qquad -8 \\ \hline 2.50x \leq 22 \\ \hline \frac{2.50x}{2.50} \leq \frac{22}{2.50} \end{array} \quad \boxed{x \leq 8.8}$$

You can go on 8 or fewer water slide rides with your allowance

(8PTS) SOLVE each inequality. Circle the solution. Then GRAPH its solution.

10)  $-9 < \frac{x}{2} - 1$

$$\begin{array}{r} +1 \quad +1 \\ \hline -8 < \frac{x}{2} \end{array}$$

**Rewrite**

$$-16 < x \rightarrow \boxed{x > -16}$$

11)  $-4(x + 10) > -80$

$$\begin{array}{r} -4x - 40 > -80 \\ +40 \quad +40 \\ \hline -4x > -40 \\ -4 \quad -4 \\ \hline \boxed{x < 10} \end{array}$$

**FLIP**

12)  $-23 + x > -4(5 - 4x) - 3$

$$\begin{array}{r} x - 23 > -20 + 16x - 3 \\ x - 23 > 16x - 23 \\ -16x \quad -16x \\ \hline -15x - 23 > -23 \\ +23 \quad +23 \\ \hline -15x > 0 \\ -15 \quad -15 \\ \hline \boxed{x < 0} \end{array}$$

**FLIP**

13)  $4x + 7x > 2(6x - 1) - (x - 7)$

$$\begin{array}{r} 11x > 12x - 2 - x + 7 \\ 11x > 11x + 5 \\ -11x \quad -11x \\ \hline 0 > 5 \text{ (F)} \end{array}$$

← must show this step!!

**X = NO SOLUTION**

14)  $-7(6 - 3x) + 4 \geq -3 - 7(5 - 3x)$

$$\begin{array}{r} -42 + 21x + 4 \geq -3 - 35 + 21x \\ 21x - 38 \geq 21x - 38 \\ -21x \quad -21x \\ \hline -38 \geq -38 \text{ (T)} \end{array}$$

**X = ALL Real #'s**

MUST show this step →

15)  $-4n + 6(n + 3) > -(2 - 8n) + 4n$

$$\begin{array}{r} -4n + 6n + 18 > -2 + 8n + 4n \\ 2n + 18 > 12n - 2 \\ -12n \quad -12n \\ \hline -10n + 18 > -2 \\ -18 \quad -18 \\ \hline -10n > -20 \\ -10 \quad -10 \\ \hline \boxed{n < 2} \end{array}$$

**FLIP**

(6PTS) SOLVE each compound inequality. Circle the solution. Then GRAPH its solution.

16)  $-18 \leq -6 - 3m \leq 0$

$$\begin{array}{r} +6 \quad +6 \quad +6 \\ \hline -12 \leq -3m \leq 6 \\ \hline -3 \quad -3 \quad -3 \end{array}$$

$4 > m \geq -2$  **FLIP**

**$-2 \leq m \leq 4$**  Rewrite



17)  $-5 + 5x < -30$  and  $7x + 2 \geq 16$

$$\begin{array}{r} +5 \quad +5 \\ \hline 5x < -25 \\ \hline \frac{5x}{5} < \frac{-25}{5} \end{array} \qquad \begin{array}{r} -2 \quad -2 \\ \hline 7x \geq 14 \\ \hline \frac{7x}{7} \geq \frac{14}{7} \end{array}$$

**$x < -5$  AND  $x \geq 2$**



**$x = \text{NO SOLUTION}$**

b/c "AND" did NOT intersect

18)  $5 - 2n > 2n + 9$  or  $5n - 8 < 7n + 2$

$$\begin{array}{r} -2n \quad -2n \\ \hline -4n + 5 > 9 \\ \hline -5 \quad -5 \\ \hline -4n > 4 \\ \hline -4 \quad -4 \\ \hline n < -1 \end{array} \qquad \begin{array}{r} -7n \quad -7n \\ \hline -2n - 8 < 2 \\ \hline +8 \quad +8 \\ \hline -2n < 10 \\ \hline -2 \quad -2 \quad \text{FLIP} \\ \hline n > -5 \end{array}$$

**$n < -1$  OR  $n > -5$**



**$n = \text{ALL Real \#}'s$**

b/c "OR" INEQ'S OVERLAP TO COVER ENTIRE # LINE

19)  $7x - 3 > 2x - 8$  or  $6x - 1 > 7x + 2$

$$\begin{array}{r} -2x \quad -2x \\ \hline 5x - 3 > -8 \\ \hline +3 \quad +3 \\ \hline 5x > -5 \\ \hline \frac{5x}{5} > \frac{-5}{5} \\ \hline x > -1 \end{array} \qquad \begin{array}{r} -7x \quad -7x \\ \hline -x - 1 > 2 \\ \hline +1 \quad +1 \\ \hline -x > 3 \\ \hline -1 \quad -1 \\ \hline x < -3 \end{array}$$

**$x > -1$  OR  $x < -3$**



(continue) SOLVE each compound inequality. Circle the solution. Then GRAPH its solution.

20)  $2a - 1 \geq 9 - 8a$  or  $7 + 4a \leq 2a - 7$

$$\begin{array}{r} +8a \quad +8a \\ \hline 10a - 1 \geq 9 \\ +1 \quad +1 \\ \hline 10a \geq 10 \\ \frac{10a}{10} \geq \frac{10}{10} \\ \hline a \geq 1 \end{array}$$

$$\begin{array}{r} -2a \quad -2a \\ \hline 2a + 7 \leq -7 \\ -7 \quad -7 \\ \hline 2a \leq -14 \\ \frac{2a}{2} \leq \frac{-14}{2} \\ \hline a \leq -7 \end{array}$$

$a \geq 1$  OR  $a \leq -7$

21)  $95 > 5 - 9N > 68$

$$\begin{array}{r} -5 \quad -5 \quad -5 \\ \hline 90 > -9N > 63 \\ \frac{90}{-9} > \frac{-9N}{-9} > \frac{63}{-9} \\ \hline \end{array}$$

$-10 < N < -7$

**BONUS (+2,+4) solve absolute value equations**

22) 2pts

23) 4 points