Name: Key!

Honors Algebra 2

Unit 4b (Part 2) Test Review

Solve the following equation or inequality. Write answers in interval notation for the inequalities.

1. $|1 - x| = 2x$

$1-x=2x$ $\quad 1-x=-2x$

$3x=1$ $\quad -x=1$

$x=-1$ ~~$x=-1$~~

$\boxed{x=1/3}$

2. $2|-2x+5|+3=17$

$2|-2x+5|=14$

$|-2x+5|=7$

$-2x+5=7$ $\quad -2x+5=-7$

$-2x=2$ $\quad -2x=-12$

$\boxed{x=-1}$ $\quad \boxed{x=6}$

3. $\frac{-2|x+3|}{-2} \geq \frac{-12}{-2}$

$|x+3| \leq 6$ → less than AND

$x+3 \leq 6$ $\quad x+3 \geq -6$

$\boxed{x \leq 3}$ $\quad \boxed{x \geq -9}$

$\boxed{[-9,3]}$

$-9 \leq x \leq 3$

4. $|2x+2|=8$

$2x+2=8$ $\quad 2x+2=-8$

$2x=6$ $\quad 2x=-10$

$\boxed{x=3}$ $\quad \boxed{x=-5}$

5. $3|5x-5|+1 \geq 10$

$3|5x-5| \geq 9$

$|5x-5| \geq 3$ → Greator

$5x-5 \geq 3$ $\quad 5x-5 \leq -3$

$5x \geq 8$ $\quad 5x \leq 2$

$x \geq 8/5$ $\quad x \leq 2/5$

$\boxed{(-\infty, 2/5] \cup [8/5, \infty)}$

6. $3+2|x-3|=7$

$2|x-3|=4$

$|x-3|=2$

$x-3=2$ $\quad x-3=-2$

$\boxed{x=5}$ $\quad \boxed{x=1}$

7. $2|3x-1|+8<4$

$2|3x-1|<-4$

$|3x-1|<-2$

not possible

NO Solution

8. $|2-3x| - 5x > 4$

$|2-3x| > 4+5x$

$2-3x > 4+5x$ $\quad 2-3x < -4-5x$

$2 > 4+8x$ $\quad 6-3x < -5x$

$-2 > 8x$ $\quad 6 < -2x$

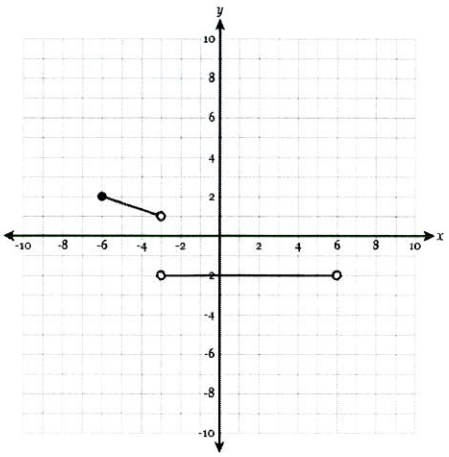
$-3 > x$

$\boxed{x < -1/4}$ $\quad \boxed{x < -3}$

$\boxed{(-\infty, -1/4)}$

Express the function graphed on the axes below as a piecewise function. State the Domain and Range.

9.

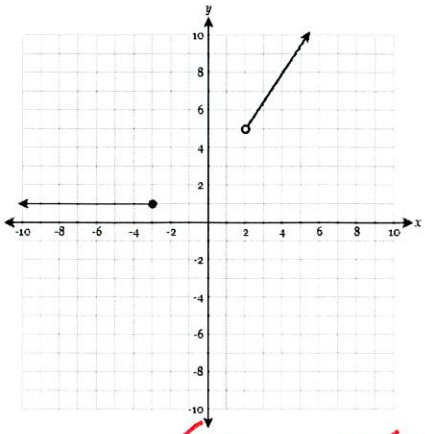


$$f(x) = \begin{cases} -\frac{1}{3}x & -6 \le x < -3 \\ -2 & -3 < x < 6 \end{cases}$$

Domain: $[-6,-3) \cup (-3,6)$

Range: $\{-2\} \cup (1,2]$

10.



$$f(x) = \begin{cases} 1 & x \le -3 \\ \frac{3}{2}x + 2 & x > 2 \end{cases}$$

Domain: $(-\infty,-3] \cup (2,\infty)$

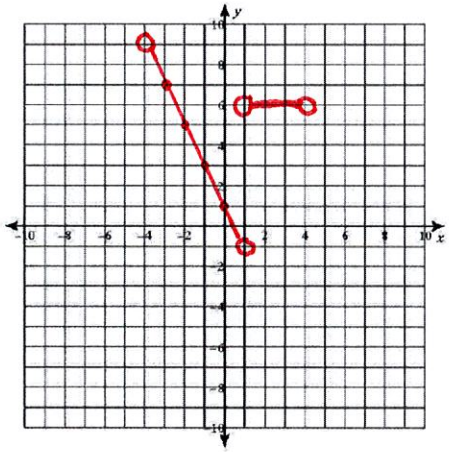
Range: $\{1\} \cup (5,\infty)$

Graph the following function on the axes provided.

11.

$$f(x) = \begin{cases} -2x + 1 & \text{for} \quad -4 < x < 1 \\ 6 & \text{for} \quad 1 < x < 4 \end{cases}$$

x	y
-4	9
1	-1



12.

$$f(x) = \begin{cases} -2 & \text{for} \quad x < -5 \\ x - 4 & \text{for} \quad x > -1 \end{cases}$$

x	y
-5	-2
-6	-2

x	y
-1	-5
0	-4
1	-3