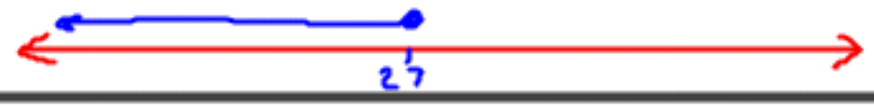
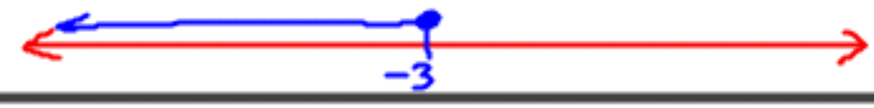
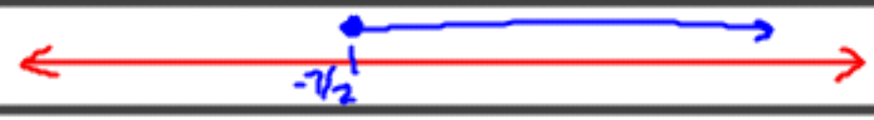
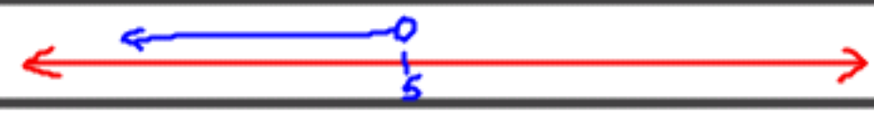
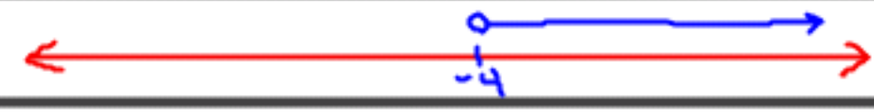
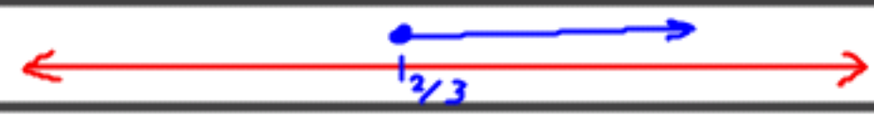
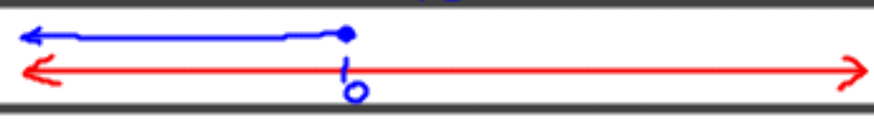
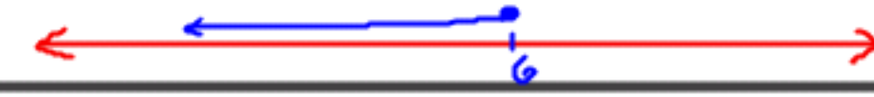
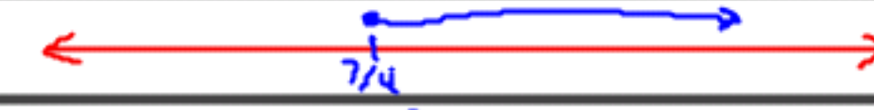
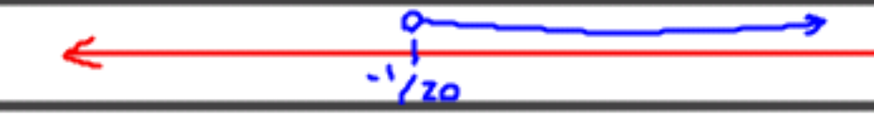
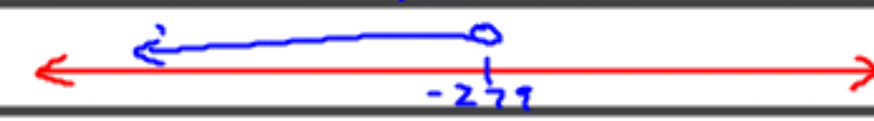
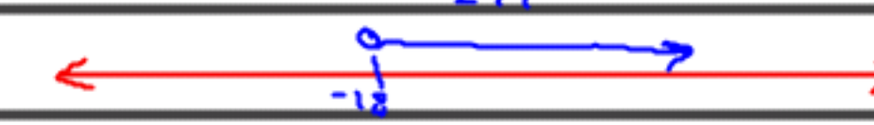
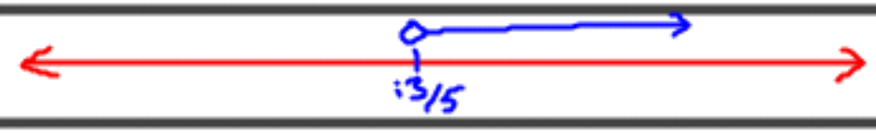
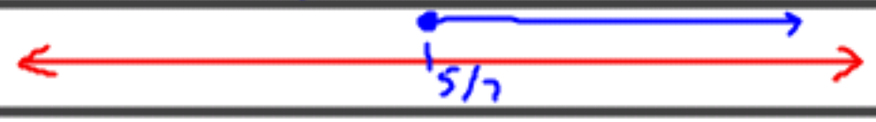
Homework Answers (3 points each) 48 points total

	Set-Builder	Interval	Graph
19.	$\{g \mid g \leq 27\}$	$(-\infty, 27]$	
20.	$\{p \mid p \leq -3\}$	$(-\infty, -3]$	
21.	$\{k \mid k \geq -\frac{7}{2}\}$	$[-\frac{7}{2}, \infty)$	
22.	$\{y \mid y < 5\}$	$(-\infty, 5)$	
23.	$\{m \mid m > -4\}$	$(-4, \infty)$	
24.	$\{b \mid b \geq \frac{2}{3}\}$	$[2/3, \infty)$	
25.	$\{t \mid t \leq 0\}$	$(-\infty, 0]$	
26.	$\{r \mid r \leq 6\}$	$(-\infty, 6]$	
27.	$\{n \mid n \geq \frac{7}{4}\}$	$[7/4, \infty)$	
28.	$\{w \mid w > -\frac{1}{20}\}$	$(-1/20, \infty)$	
29.	$\{x \mid x < -279\}$	$(-\infty, -279)$	
30.	$\{c \mid c > -18\}$	$(-18, \infty)$	
31.	$\{d \mid d \geq -5$	$[-5, \infty)$	

Homework Answers

	Set-Builder	Interval	Graph
32.	$\{z \mid z > \frac{13}{5}\}$	$(\frac{13}{5}, \infty)$	
33.	$\{g \mid g < 2\}$	$(-\infty, 2)$	
34.	$\{a \mid a \geq \frac{5}{7}\}$	$[5/7, \infty)$	

Compound Inequalities

If $a < x < b$ then that means x is <u>both</u> greater than a AND less than b. In other words, x is between a and b.

lowest ↓ highest ↓

$5 < 2x < 10$

$2x$ is between 5 & 10

$$-7 \le 2x - 5 \le 13$$

$+5 \quad +5 \quad +5$

$$\frac{-2}{2} \le \frac{2x}{2} \le \frac{18}{2}$$

$$-1 \le x \le 9$$

$[-1, 9]$

$$4 \cdot 2 < \left(\frac{2-p}{4}\right) \leq 5 \cdot 4$$

lowest variable highest

$$8 < 2-p \leq 20$$
$$-2 \quad -2 \quad -2$$

$$\frac{6}{-1} < \frac{-p}{-1} \leq \frac{18}{-1}$$

$$-6 > p \geq -18$$

$$-18 \leq p < -6$$

Practice Problem #1

$3(5x-2)<24$ or $6x-4>4+5x$

$-5x$ $-5x$

$15x-6<24$

$+6 \quad +6$

$\frac{15x}{15} < \frac{30}{15}$

$x<2$

$1x-4>4$

$+4 \quad +4$

$1x>8$

$x>8$

2 "or" 8

$(-\infty,2)\cup(8,\infty)$

"or" = union $(\cup)$

"or" problems mean that the any x that makes either inequality work is a part of the answer. It does not have to work for both!

When you check your test numbers it only has to work for one of the two inequalities.

Absolute Value Inequalities

Absolute Value Inequalities are solved exactly like absolute value equations. Checking the number line is the only way to find what section or sections of the number line will work. YOU MUST CHECK!!!!

$$|x+3| \leq 5$$

$(x+3) \leq 5$

$-3 \quad -3$

$\{x \mid -8 \leq x \leq 2\}$

$x \leq 2$

$[-8, 2]$

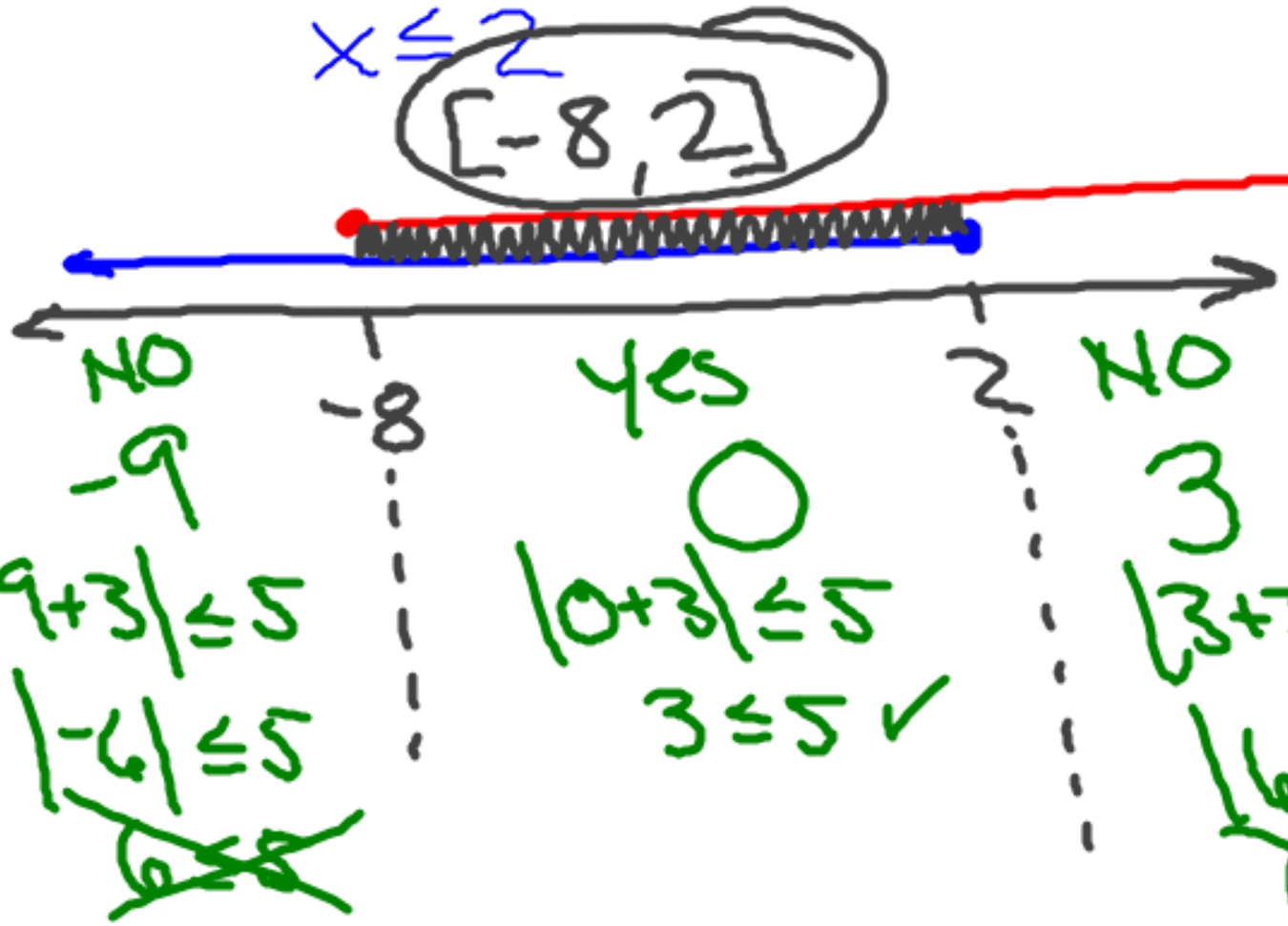
$-(x+3) \leq 5$

$-x-3 \leq 5$

$+3 \quad +3$

$\frac{-x}{-1} \leq \frac{8}{-1}$

$x \geq -8$



Choose a "test" number in each section w/ a graph in it.

$$|3w+2|>5$$

$(3w+2)>5$

$-2 \quad -2$

$\frac{3w}{3} > \frac{3}{3}$

$w > 1$

$-(3w+2)>5$

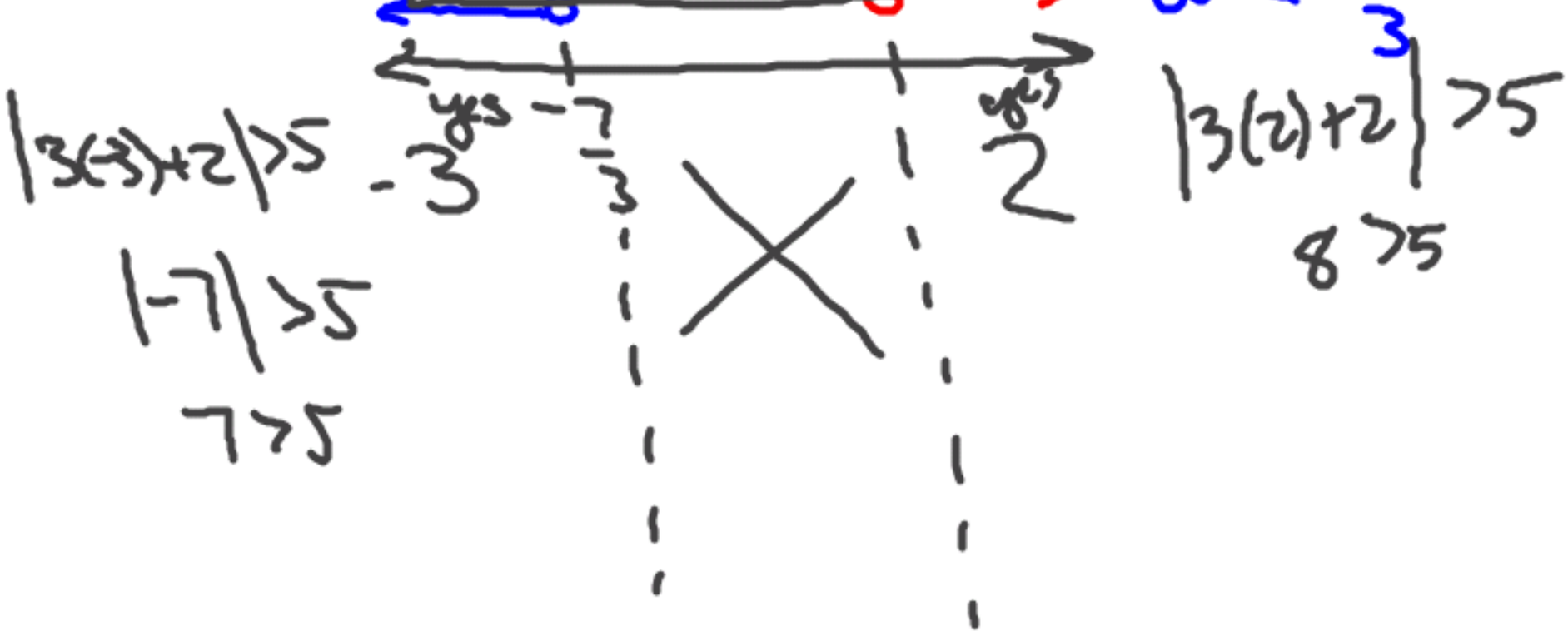
$-3w-2>5$

$+2 \quad +2$

$\frac{-3w}{-3} > \frac{7}{-3}$

$w < -\frac{7}{3}$

$(-\infty, -\frac{7}{3}) \cup (2, \infty)$



$|3(-3)+2|>5$

$|-7|>5$

$7>5$

$|3(2)+2|>5$

$8>5$

Practice Problem #2

$+ \quad < \quad -$

$|2w+5| < -3$

$(2w+5) < -3$

$-5 \quad -5$

$\frac{2w}{2} < \frac{-8}{2}$

$w < -4$

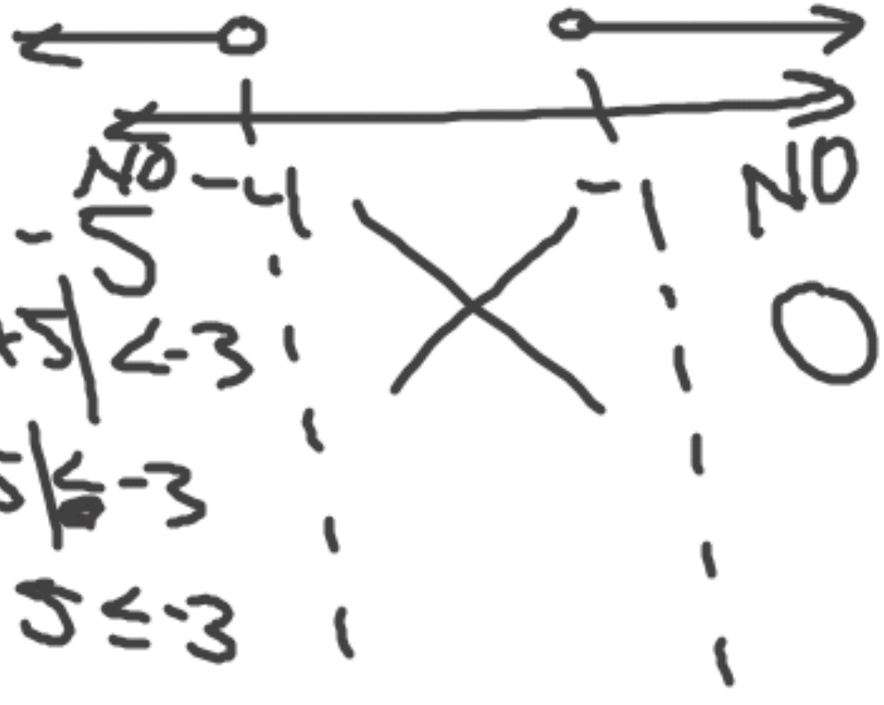
$-(2w+5) < -3$

$-2w-5 < -3$

$+5 \quad +5$

$\frac{-2w}{-2} < \frac{2}{-2}$

$w > -1$



$|2(-5)+5| < -3$

$|-5| < -3$

$5 \leq -3$

$|2(0)+5| < -3$

$|5| < -3$

$5 < -3$

no x will make it true.

Practice Problem #3

$$|2w+5|+5>2$$

$(2w+5)+5>2$

$2w+10>2$

$-10 \quad -10$

$2w>-8$

$\frac{2w}{2}>\frac{-8}{2}$

$w>-4$

$-(2w+5)+5>2$

$-2w-5+5>2$

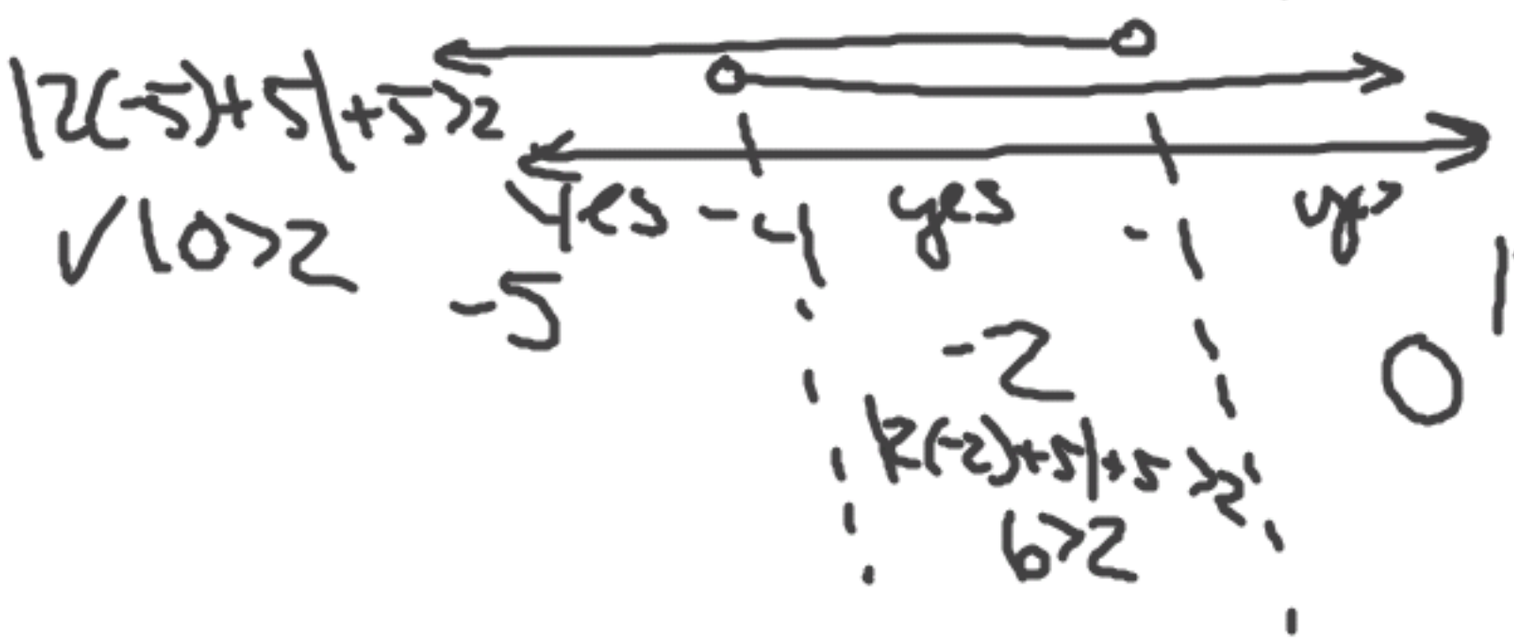
$-2w>2$

$\frac{-2w}{-2}>\frac{2}{-2}$

$w<-1$

$(-\infty, \infty)$

all real numbers



$|2(0)+5|+5>2$

$10>2$

Homework

44:29-38 All

Give answer in interval notation!