Set and Interval Notation Worksheet

Directions: Write each of the following in set and interval notation.

INEQUALITIES	SET NOTATION	INTERVAL NOTATION
1. $x < -3$		
2. $x \leq 11$		
3. $x \leq -1 \text{ or } x > 8$		
4. $-3 \leq x < 17$		
5. range: greater than 7		
7. domain: at most -6		
8. range: no more than 5		
9. domain: at least 45		
10. domain: between 7 and 23		
11. domain: All real numbers		
12. range: Not a whole number		
13. $-8 < x < 29$		
14. domain: Between -9 and 12 inclusive		
15. range: The empty set		
16. $3x - 5 > 17x - 1$		
17. $-12 < 4x - 8 \leq 12$		
18. $4x - 8 > -12 \text{ and } 5x - 1 \leq 9$		
19. $4(2x - 3) = -2(x - 1) + 10x$		
20. $3x - 9 \neq 7(3 - 2x) - 5$		

ANSWERS

INEQUALITIES	SET NOTATION	INTERVAL NOTATION
1. x < -3	$\{x\|x<-3\}$	$(-\infty,-3)$
2. $x \le 11$	$\{x\|x\le 11\}$	$(-\infty,11]$
3. $x \le -1$ *or* $x > 8$	$\{x\|x\le -1 \text{ or } x>8\}$	$(-\infty,-1]\cup(8,\infty)$
4. $-3 \le x < 17$	$\{x\|-3\le x<17\}$	$[-3,17)$
5. greater than 7	$\{y\|y>7\}$	$(7,\infty)$
7. at most -6	$\{x\|x\le -6\}$	$(-\infty,-6]$
8. no more than 5	$\{y\|y\le 5\}$	$(-\infty,5]$
9. at least 45	$\{x\|x\ge 45\}$	$[45,\infty)$
10. between 7 and 23	$\{x\|7<x<23\}$	$(7,23)$
11. All real numbers	$\{x\|x\in R\}$	$(-\infty,\infty)$
12. Not a whole number	$\{y\|y\neq W\}$	Not possible
13. $-8 < x < 29$	$\{x\|-8<x<29\}$	$(-8,29)$
14. Between -9 and 12 inclusive	$\{x\|-9\le x\le 12\}$	$[-9,12]$
15. The empty set	$\{y\|y\in\varnothing\}$	Not possible
16. 3x − 5 > 17x − 1	$\left\{x\middle\|x<-\frac{2}{7}\right\}$	$\left(-\infty,-\frac{2}{7}\right)$
17. $-12 < 4x-8 \le 12$	$\{x\|-1<x\le 5\}$	$(-1,5]$
18. $4x-8>-12$ and $5x-1\le 9$	$\{x\|-1<x\le 2\}$	$(-1,2]$
19. 4(2x − 3) = − 2(x − 1) + 10x	$\{x\|x\in\varnothing\}$	Not possible
20. $3x-9\neq 7(3-2x)-5$	$\left\{x\middle\|x\neq\frac{25}{17}\right\}$	$\left(-\infty,\frac{25}{17}\right)\cup\left(\frac{25}{17},\infty\right)$