

Name \_\_\_\_\_

Date \_\_\_\_\_

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Alg2: SET & INTERVAL NOTATION with INEQUALITIES Worksheet #1

COMPLETE the table below, graph the solution, express the solution in set and interval notation. When necessary solve the inequality. ALL WORK must be shown. Attach additional paper if necessary.

INEQUALITIES	GRAPH	SET NOTATION	INTERVAL NOTATION
1. range: greater than 7		$\{y   y > 7\}$	$(7, \infty)$
2. domain: at most -6		$\{x   x \leq -6\}$	$(-\infty, -6]$
3. range: no more than 5		$\{y   y \leq 5\}$	$(-\infty, 5]$
4. domain: at least 45		$\{x   x \geq 45\}$	$[45, \infty)$
5. domain: between 7 and 23		$\{x   7 < x < 23\}$	$(7, 23)$
6. domain: All real numbers		$\{x   x \in \mathbb{R}\}$	$(-\infty, \infty)$
7. range: Not a negative number		$\{y   y \geq 0\}$	$[0, \infty)$
8. range: Not equal to 9		$\{y   y \neq 9\}$	$(-\infty, 9) \cup (9, \infty)$
9. domain: Between -9 and 12 inclusive		$\{x   -9 \leq x \leq 12\}$	$[-9, 12]$
10. range: The empty set		$\{ \}$ or $\emptyset$	
INEQUALITIES	GRAPH	SET NOTATION	INTERVAL NOTATION

11. $4(5 - 8x) \geq -2 - 4(8x + 3)$		$\{x \mid x \in \mathbb{R}\}$	$(-\infty, \infty)$
12. $-7x - 3x + 2 < -8x - 8$		$\{x \mid x > 5\}$	$(5, \infty)$
13. $4x - \frac{x}{3} \geq 5$		$\{x \mid x \geq \frac{15}{11}\}$	$[\frac{15}{11}, \infty)$
14. $4(2x - 3) \leq -2(x - 1) + 10x$		$\{x \mid x \in \mathbb{R}\}$	$(-\infty, \infty)$
15. $-8x + 4(5x + 1) < -6x - 14$		$\{x \mid x < -1\}$	$(-\infty, -1)$

Draw a graph that represents each of the following solutions.

1. $[3, \infty)$		4. $\{x \mid x > 7\}$	
2. $(-\infty, 7)$		5. $\{y \mid y \leq -9\}$	
3. $(-5, 9]$		6. $\{w \mid -3 \leq w < 7\}$	

SAT practice question: If two more than  $m$  is a negative integer and if 5 more than  $m$  is a positive integer, which of the following could be a value of  $m$ . A.  $-7$  B.  $-5$  C.  $-3$  D.  $4$  E.  $6$