

Name: _____

Date: _____

Unit 3 Review Sheet

As a reminder: This review is **not comprehensive**. You should review your class notes and homework.

1. The inequality $2x+1 > 15$ will be true when

- (1) $x=7$ ~~X~~ $14+1 > 15$
 (2) $x=0$ $15 > 15$? (3) $x=10$
 (4) $x=5$

$$\begin{array}{r} 2x+1 > 15 \\ -1 \quad -1 \\ \hline 2x > 14 \\ \frac{2x}{2} > \frac{14}{2} \\ x > 7 \end{array}$$

2. Which of the following compound inequalities is shown graphed below?



- (1) $-1 \leq x < 5$ ~~X~~ (3) $x < -1$ or $x \geq 5$
 (2) $-1 < x \leq 5$ ~~X~~ (4) $x \leq -1$ or $x > 5$

ARROWS → OR
 NO ARROWS → AND

3. The sum of two consecutive odd integers is at least 16. Which of the following inequalities would model this statement?

- (1) $n+n+3 < 16$ ~~X~~ (3) $n+n+2 > 16$
 (2) $n+n+2 \geq 16$ (4) $n+n+3 \geq 16$

let $n =$
 let $n+2 =$

$$n + n + 2 \geq 16$$

Solve

At least } \geq
 At most } \leq

4. The solution to $\frac{-2x}{3} + 7 < 15$ is the set

- (1) $x > -12$ (3) $x > 33$
 (2) $x < -6$ (4) $x < -10$

$$\begin{array}{r} \frac{-2x}{3} + 7 < 15 \\ -7 \quad -7 \\ \hline \frac{-2x}{3} < 8.3 \\ \text{negative} \rightarrow \div -2 \quad \text{flip} \\ \frac{-2x}{-2} < \frac{24}{-2} \\ x > -12 \end{array}$$

5. Which of the following intervals is equivalent to the statement $-3 < x \leq 9$?

(1) $(-3, 9]$ (3) $(-3, 9)$ $< \leq$
(2) $[-3, 9)$ (4) $[-3, 9]$ $0 \bullet$
 $(\]$

6. Which of the following compound inequalities is *not* true?

(1) $5 > 3$ and $10 \leq 10$ (3) $-5 < 2$ or $6 > 10$ Both false
(2) $-6 < -1$ and $6 > 1$ (4) $-4 > 2$ or $3 < 1$

7. Solve the following equation for v in terms of all other variables involved.

$\frac{2(v-h)}{k} = r$

$2(v-h) = rk$

$2v - 2h = rk$

$2v = rk + 2h$

$v = \frac{rk + 2h}{2}$

one statement has to be true in an "OR" statement for the whole thing to be true

8. Determine whether $x = 5$ is a solution to the compound inequality shown below. Justify your answer.

$x + 8 > 11$ and $2x - 3 < 7$ Both must be TRUE

$5 + 8 > 11$		$2(5) - 3 < 7$
$13 > 11$		$10 - 3 < 7$
TRUE		$7 < 7$
		FALSE

NO! Because both inequalities must be true.

9. The Arlington Math Team is taking small busses to its regional competition. Each bus holds only eight people and there are 35 students and two faculty advisors going on the trip.

If n represents the number of busses needed for the trip, write an inequality that models the different values of n that can get Arlington's Math Team to regionals.

37 people

$$8n \geq 37$$

Solve the inequality and state the least number of busses needed to transport the Math Team.

$$\frac{8n}{8} \geq \frac{37}{8}$$
$$n \geq 4.625$$

??

$N \geq 5$
We can't have a piece of a bus ;)

10. Consider the inequality given below.

$$-1 \leq 2x + 7 < 21$$

a. Is $x = 3$ part of the solution set of this compound inequality? Justify your response.

b. Solve the inequality and graph its solution set on the number line below.

Solve inequality #1 here:

Solve inequality #2 here:

