KEY

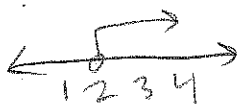
Chapter 3 Midterm Review

Solve the inequality AND graph the solution on a number line

1.) $3x + 4 > 10$

$3x > 6$

$x > 2$



2.) $\frac{5(2-x)}{5} \geq \frac{40}{5}$

$2 - x \geq 8$

$-x \geq 6$

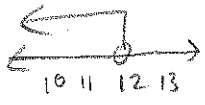
$x \leq -6$

3.) $2x + 5 > 4x - 19$

$24 > 2x$

$12 > x$

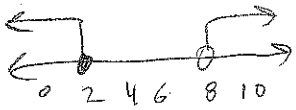
$x < 12$



4.) $3x + 4 > 28$ *or* $5x + 3 \leq 13$

$3x > 24$ $\quad 5x \leq 10$

$x > 8$ or $x \leq 2$

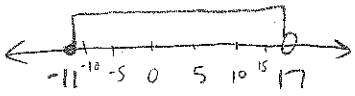


5.) $-4 \leq \frac{2x+6}{4} < 10$

$-16 \leq 2x + 6 < 40$

$-22 \leq 2x < 34$

$-11 \leq x < 17$

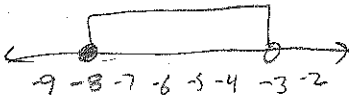


6.) $34 < 10 - 8x \leq 74$

$24 < -8x \leq 64$

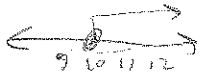
$-3 > x \geq -8$

$-8 \leq x < -3$



Write the inequalities in interval notation.

7.) $x \geq 10$



$[10, \infty)$

8.) $15 < x \leq 25$

$(15, 25]$

Write the inequality represented by the graph.

9.)

$x \geq 7$

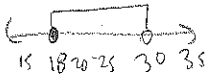
10.)

$11 < x \leq 20$

Write the inequality that is represented by the interval notation.

11.) $(-\infty, 9]$ 

$X \leq 9$

12.) $[18, 30)$ 

$18 \leq X < 30$

Write the set of negative odd integers between -18 and -8 in both Roster form and Set Builder notation.

13.) Roster: $\{-17, -15, -13, -11, -9\}$

Set Builder: $\{x \mid x \text{ is a negative odd integer}; -18 < x < -8\}$

Solve AND graph on a number line:

14.) $|3x + 6| > 18$

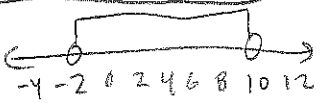
$-18 > 3x + 6 > 18$
$-24 > 3x > 12$
$-8 > x > 4$

$x < -8$ OR $x > 4$

15.) $-6|2x - 8| > -72$

$|2x - 8| < 12$
$-12 < 2x - 8 < 12$
$-4 < 2x < 20$
$-2 < x < 10$

$-2 < x < 10$



Set A = {-3,-1,0,1,3,5}

Set B = {x|x is a positive odd, x ≤ 15} $\{1, 3, 5, 7, 9, 11, 13, 15\}$

Set C = {x|x is a multiple of 3} $\{\ldots, -9, -6, -3, 0, 3, 6, 9, \ldots\}$

16.) $A \cup B$ $\{-3, -1, 0, 1, 3, 5, 7, 9, 11, 13, 15\}$

17.) $A \cap B$ $\{1, 3, 5\}$

18.) $A \cap C$ $\{-3, 0, 3\}$

19.) $(A \cup B) \cap C$ $\{-3, 0, 3, 9, 15\}$