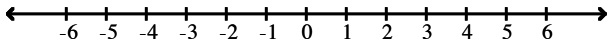
Math 990 Inequality Practice Problem Set

Name_____

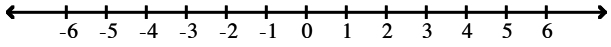
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Write each inequality in interval notation and graph the interval on a number line.

1) $x < 3$

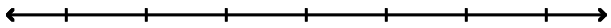


2) $x \geq -7$



Solve the inequality. Write the solution set in interval notation and graph it.

3) $-11n + 6 > -12n - 6$

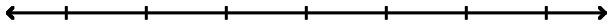


Solve the inequality and write the solution set in interval notation.

4) $-0.2z > -0.24$

Solve the inequality. Write the solution set in interval notation and graph it.

5) $16x - 32 > 4(3x - 9)$



6) $4(x - 9) + 19x < -5(-5x - 8) - 3x$

7) $\frac{6}{35}(x+8) > \frac{1}{7}(x+2)$

Solve the problem.

8) Paul has grades of 80 and 96 on his first two tests. What must he score on his third test in order to have an average of at least 80?

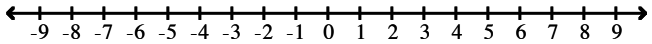
9) Sue drove her car 391 miles in January, 390 miles in February, and 287 miles in March. If her average mileage for the four months from January to April is to be at least 318 miles, how many miles must she drive in April?

10) The perimeter of a rectangle must be no greater than 72 meters. The width must be 12 meters. Find the greatest possible value for the length of the rectangle.

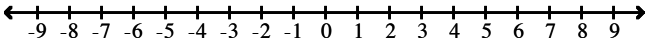
11) Jon has 1077 points in his math class. He must have 90% of the 1400 points possible by the end of the term to receive credit for the class. What is the minimum number of additional points he must earn by the end of the term to receive credit for the class?

Solve the inequality. Write the solution set in interval notation and graph it.

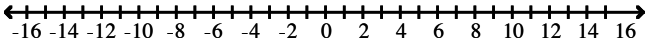
12) $12 < 4x \leq 28$



13) $3 \leq 3t - 3 \leq 21$

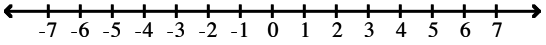


14) $-2 \leq 4 + \frac{1}{2}q \leq 5$

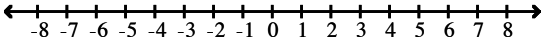


For the compound inequality, give the solution set in both interval and graph forms.

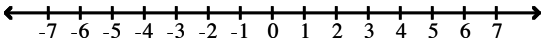
15) $16 < 2x + 10$ and $4x + 4 < 32$



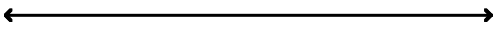
16) $4x > 4$ and $x + 5 < 5$



17) $6x - 4 < 2x$ or $-3x \leq -9$

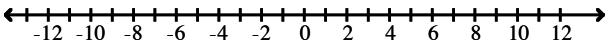


18) $-6x + 1 \geq 13$ or $3x + 3 \geq -9$



Solve the inequality and graph the solution set.

19) $|\, 2x - 8 \,| \geq 3$



Solve the equation.

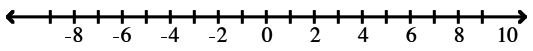
20) $|\, 8 - 4p \,| = 28$

Solve the given equation or inequality. If an equation is given, then write the solution set in set notation. If an inequality is given, then write the solution set in interval notation.

21) $\left|\frac{1}{5}x+\frac{1}{3}\right|+\frac{1}{4}=\frac{3}{4}$

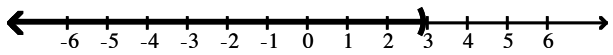
Solve the inequality and graph the solution set.

22) $|3x+2|<2$

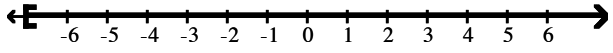


Answer Key
Testname: INEQUALITYPRACTICE

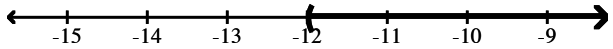
1) $(-\infty, 3)$



2) $[-7, \infty)$

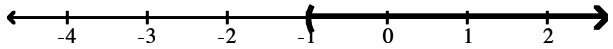


3) $(-12, \infty)$

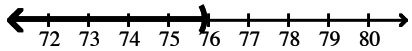


4) $(-\infty, 1.2)$

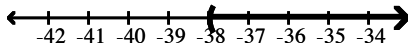
5) $(-1, \infty)$



6) $(-\infty, 76)$



7) $(-38, \infty)$



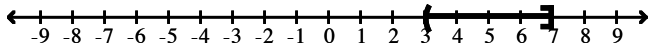
8) at least 64

9) at least 204 miles

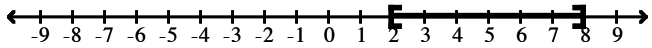
10) 24 meters

11) 183 points

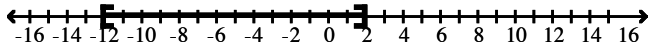
12) $(3, 7]$



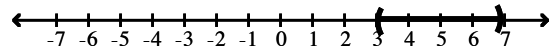
13) $[2, 8]$



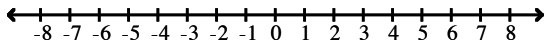
14) $[-12, 2]$



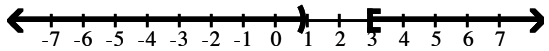
15) $(3, 7)$



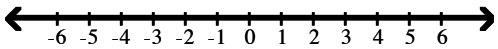
16) $\emptyset$



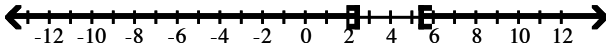
17) $(-\infty, 1) \cup [3, \infty)$



18) $(-\infty, \infty)$



19) $\left(-\infty, \frac{5}{2}\right] \cup \left[\frac{11}{2}, \infty\right)$



20) {– 5, 9}

21) $\left\{-\frac{25}{6}, \frac{5}{6}\right\}$

22) $\left(-\frac{4}{3}, 0\right)$