

Name: _____
PC: Solving Non-Linear Inequalities

Date: _____
Ms. Loughran

For each inequality below, express its solution set 3 ways:

- (a) As a number line.
- (b) Using set-builder notation.
- (c) Using interval notation.

1. $\frac{x+4}{2-x} \geq 0$

12. $\frac{3x+1}{x-1} \geq 2$

2. $\frac{x}{x+2} < 0$

13. $\frac{4}{x+2} > 2$

3. $\frac{x+5}{x-1} > 0$

14. $\frac{1}{4} < \frac{7}{7-x}$

4. $\frac{6}{x-3} > 0$

15. $\frac{x+2}{x-6} \geq -3$

5. $\frac{(x+2)(x-1)}{4-x} \geq 0$

16. $\frac{x-8}{x+6} \leq 2$

6. $\frac{(6-x)(3+x)}{x+1} \leq 0$

17. $\frac{2}{x(x-1)} < 1 + \frac{2}{x-1}$

7. $\frac{x^2-5x+4}{x} > 0$

18. $4 + \frac{1}{x} \geq \frac{10}{2x}$

8. $\frac{x^2-16}{(x-1)^2} < 0$

19. $x - \frac{10}{x-1} \geq 4$

9. $\frac{3x+1}{x+4} \geq 1$

20. $\frac{(x+1)^2(x+2)}{x-1} \geq 0$

10. $\frac{x-8}{x} + x - 3 \leq 0$

11. $\frac{3}{x-2} \leq -1$