

**Lesson #10: Solving and Graphing One Variable Inequalities and Compound Inequalities
(Reference: Lessons #45, #66, #70, #73, #77, #81 & #82 in book)****Problem**

1. **For each of the following statements please create an algebraic inequality. (YOU DO NOT NEED TO SOLVE IT!!)**

1. The quotient of a number and 2 is less than or equal to 6.

2. $\frac{1}{2}$ is greater than the product of a number and $\frac{3}{4}$.

3. The sum of the product of a number and -2 and 4 is at least -8.

4. The difference of 3 times a number and 6 is less than or equal to -30.

5. 6 is greater than the sum of a number and 8.

6. **For each of the following algebraic inequalities, please write each inequality in words. (JUST LIKE WHAT IS GIVEN IN PROBLEMS 1-5.)**

6. $\frac{x}{7} \leq 8$

7. $1.5x + 2.5 < 11.5$

8. $12x \geq -8$

9. $9 > \frac{1}{3}x - 8$

10. $\frac{x}{7} - 4 < 8$

11. **For each of the following inequalities, solve the inequality for the given variable and then graph the inequality, and give me the solution set in interval notation.**

11. $4x - 9x + 6 \leq -34$

12. $4x + 6 + 2x - 3 > 9 + 5x - 4$

13. $-15 - (2x + 1) \geq 4(x - 1) - 3x$

14. $5 - 3(x - 1) < 2(x + 3) + 1$

15. $5(x-3) - 7x \leq 4(x-3) + 9$

16. **For each of the following compound inequalities, first graph the inequality and then give me the solution set for the inequality in interval notation.**

16. $-1 < x \leq 5$

17. $5 < x < 10$

18. $x < 3$ or $x \geq 9$

19. $x - 3 < -5$ or $-2x < -6$

20. $-5x - 6 + 2x < 6$ or $-2(x-2) + x > 12$

21. **For each of the following compound inequalities, please solve the inequality, graph the inequality, and give me the solution set for the inequality in interval notation.**

21. $-15 \leq 2x + 7 \leq -9$

22. $-7 \leq 3x - 4 \leq 8$

23. $4 < -2x + 3 \leq 8$

24. $-1 \leq -5x + 4 \leq 14$

25. $-4 < -\frac{1}{2}x - 2 < 2$