Name: _____ Date: _____ **Unit 1 Homework**

Absolute Value Inequalities Homework

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable.

Solve and graph your solution to each inequality. Also, represent your solution as a compound inequality. One of these problems has no solution. You may be able to identify it before even solving! Always remember to check your solutions as well.

1. $2|3x - 4| + 10 < 54$

2. $-|4h - 1| + 3 > 10$

3. $2|5x - 3| - 44 \geq 36$

4. $2|-2x + 1| > 4$

5. $|3z + 15| \geq 0$

6. $5 - \frac{1}{2}|x - 2| \leq 16$

7. $3 - |x + 5| > 1$

8. $2|5t - 1| + 9 \leq 23$

9. **Generalize:** Choose **any** positive real number, and let a be equal to the number you choose. Solve and consider the graphs of the solutions to the equations $|x| < a$ and $|x| > a$. How do the graphs contrast? ie. What is different about them?

Selected Solutions (not including graphs)

1. $-6 < x < 8$ & 2/3

3. $x \leq -7.4$ or $x \geq 8.6$

5. all real numbers

7. $x < -7$ or $x > -3$