

Name _____ Date _____ Per _____

Study Guide: Solving Inequalities

Part 1: Solve the following inequalities, graph and write in interval notation

1.) $x + 3 > 4$

2.) $x - 5 \leq 6$

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

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

Graph:	Graph:	Graph:	Graph:
Interval:	Interval:	Interval:	Interval:

5.) $\frac{x}{3} + 1 \leq 2$

6.) $-2(x + 3) - 1 < 9$

7.) $-3x + 2 < -2x - 3$

Graph:	Graph:	Graph:	Graph:
Interval:	Interval:	Interval:	Interval:

8.) $3 < 5x - 2$

9.) $-2(5 + 6x) < 6(8 - 2x)$

10.) $3(1 - 2x) > 3 - 6x$

Graph:	Graph:	Graph:	Graph:
Interval:	Interval:	Interval:	Interval:

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Part II: Solve the compound inequalities, graph, and write in interval notation.

11.) $x - 2 < -8$ or $\frac{x}{8} > 1$

12.) $-1 < 9 + x \leq 17$

13.) $-50 < 7x + 6 < -8$

Graph:
Interval:

Graph:
Interval:

Graph:
Interval:

14.) $-10x + 3 \leq -37$ or $3x - 10 \leq -25$

15.) $8x + 8 \geq -64$ and $-7 - 8x \geq -79$

Graph:
Interval:

Graph:
Interval:

Part III: Solve the compound inequalities, graph, and write in interval notation.

16.) $|x + 5| \leq 9$

17.) $\left|\frac{x}{6}\right| > 5$

18.) $|10 + 4x| < 14$

Graph:
Interval:

Graph:
Interval:

Graph:
Interval:

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19.) $2|x + 3| - 4 \leq 6$

20.) $|x - 8| + 10 > 22$

Graph:

Interval:

Graph:

Interval:

Part IV Applications: Write as an inequality and solve.

21.) Mr. Tapia has \$4000 saved for a vacation to Hawaii. His airplane ticket is \$637. Write and solve an inequality to find how much he can spend for everything else.

22.) You have an allowance of \$15.00 per week. You are in a bowling league that costs \$6.50 each week, and you save at least \$5.00 each week. Write and solve an inequality to show how much you have left to spend each week.

23.) Andy Rios won 40 lollipops playing basketball at the school fair. He gave two to every student in his math class. He has at least 7 lollipops left.

- Write an inequality to represent the situation. Be sure to define your variable.
- Solve the inequality to find the maximum number of students in his class.

24.) You need to buy some pencils and an eraser. You can spend no more than \$5. The eraser costs \$1 and the pencils cost \$0.25 each.

- Write an inequality to represent the situation. Be sure to define your variable.
- Solve the inequality to find the maximum number of pencils you can buy.