Name: _____ Date: _____ Pd: _____

INEQUALITIES APPLICATIONS WORKSHEET #2
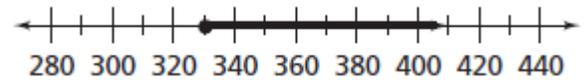
Part One: Graphing Inequalities:

Caitlyn volunteers with some friends at a community center

1) Caitlyn is shopping online to find a new television for the center. She wants a television with at least a 26 inch screen. Write an inequality to show how much money, m, the center will need to spend.

Television Prices	
Screen Size	Price
22 inch	$300
26 inch	$330
32 inch	$370
40 inch	$420

Inequality: _____

2) Caitlyn drew the graph to the right to represent the solution to her inequality.

280 300 320 340 360 380 400 420 440

     a. Why do you think she drew a solid circle at 330?

     b. Caitlyn wants to have money left over for accessories. How can Caitlyn change her graph to show that they need to have more than $330?

     c) Draw a graph to show how much money they need.

3) The center has a stand for the television that will support up to 30 lbs of weight. Draw a graph to show how much the television she buys can weigh.

Part Two: Solving Inequalities

Solve the inequality: $3x - 15 \geq 12$

How is solving the inequality to the left similar to solving the equation $3x - 15 = 12$?

1) Caitlyn plans to use money from the community center's savings account to buy a video game system. She also needs to leave at least $129 in the savings account to buy some softball equipment.

Video Game System Sale This Month Only
$250.00
Selected Extra Games on Sale
$35.00 each

The inequality a – 129 ≥ 250 represents the situation where *a* represents the amount of money the center has in its savings account.

a) What does the expression a – 129 represent?

b) Solve the inequality.

What does the solution mean?

c) Use the number line below to show all possible values for *a*.

2) The center rents rooms for an hourly rate, plus a set-up fee.

Room Rentals		
Room	Rental Rate per hour	Set Up Fee
Main Hall	$15	$40
Dining Room	$12	$80

a) A group has $140 to sepnd. The inequality 15h +40 ≤ 140 represents the cost to rent the main hall, where *h* represents the number of hours the group can rent the room.

Solve the inequality.
15h +40 ≤ 140

b) The same group is also considering renting the dining room. Write and solve an inequality to represent this situation.

Inequality: _____

c) Which room should the group rent? Why?

Part 3: Applications of Inequalities

Problem A: Tony's parents are choosing a new long distance phone plan. The phone company offers two plans. With plan 1, a long distance call costs 43 cents plus 2 cents per minute. With plan 2, a long distance call costs 25 cents, plus 4 cents per minute. Tony's mom makes a lot of long class, so she wants to know which company is a better deal for longer phone calls.

1. Write an expression to represent plan 1: _____

2. Write an expression to represent plan 2: _____

3. Write an inequality that represents when plan 1 is less than plan 2. Then solve it._____

4. What advice would you give Tony's mom based on your solution? Which plan should she go with? Why?

Problem B: You get a new x box for your birthday from your parents and $175 from your grandparents. You want to use the $175 to buy some video games for your x box. Games are on sale for $35 each at Target.

1. The inequality $175 - 35g \geq 0$ represents the number of games that you can buy. Why is the inequality ≥ 0?

2. Solve the inequality below.

What does your solution mean?

3. Graph the solution on a number line. $\longleftarrow\hspace{4cm}\longrightarrow$

4. Could you have g be a negative number in this situation? For example can g = - 4? Why or why not?