Name: _____ Date: _____ Block: _____

Algebra 2 Honors- Week 5 Homework

Monday-

Piecewise Functions Assignment

Write a piecewise function to model problems 1 through 3.
1. My dog groomer charges according to your dog's weight. If your dog is 15 pounds and under, the groomer charges $30. If your dog is between 15 and 40 pounds, she charges $40. If your dog is over 40 pounds, she charges $50.

2. The land of Ficticia has an income tax rate of 10% for incomes up to $35,000 and 15% for incomes above $35,000.

3. My cell phone company charges $30 per month for 500 minutes of talk time plus $0.20 for each additional minute over 500.

Graph on a coordinate plane.

4. $\begin{cases} f(x) = 2x & if \ x > 0 \\ f(x) = -2x & if \ x \le 0 \end{cases}$

5. $\begin{cases} f(x) = 3x - 1 & if \ x < 3 \\ f(x) = 7 - x & if \ x \ge 3 \end{cases}$

Tuesday/Wednesday- Classroom visits (No homework!)

Thursday-

Step Function Assignment

For each scenario, write either a step or piecewise function and then graph it on a coordinate plane.
1. Each classroom in this school can hold no more than 32 students. Write a function to represent the number of classrooms needed given x number of students.
2. The student council is looking to buy homecoming shirts. If 40 or less shirts are ordered, they cost $6 each. For more than 40 and up to 70 shirts, they cost $5 each. For more than 70, they cost $4 each. Write a function to represent the cost per shirt.
3. Postal rates are 46¢ for a one ounce letter plus 20¢ for each additional ounce. Write a function to represent the price to mail a letter given x ounces.
4. Your phone company charges $45 if you use less than 300 minutes, $70 is you use between 300-450 minutes, and $90 for more than 450 minutes. Write a function representing the price per minute.

Friday-

Absolute Value Equation Assignment

1. $|3x - 2| = 11$ 2. $|2x - 7| - 3 = 10$ 3. $4|3x - 1| = -20$

4. $3|x - 9| + 4 = 16$ 5. $|4x + 5| = 1 - 2x$ 6. $3|x - 2| = 24 + 6x$

7. A company packs coffee beans in airtight bags. Each bag should weigh 16 ounces but it is hard to fill each bag to the exact weight. After being filled, each bag is weighed and if it is more than 0.25 ounces

overweight or underweight, it is emptied and repacked. What are the lightest and heaviest acceptable bags*?*

8. Hypothermia and hyperthermia are similar words but have opposite meanings. Hypothermia is defined as a lowered body temperature. Hyperthermia is an extremely high body temperature. Both are potentially dangerous conditions, and can occur when a person's body temperature is more 8 degrees above or below the normal body temperature of 98.6. At what temperatures do these conditions begin to occur?

9. Describe a real world situation that could be represented by $|x-4| = 10$.