MTH 1210, FALL 2013
DR. GRAHAM-SQUIRE

SECTION 2.1/2.2: IN-CLASS ACTIVITY
GRAPHING CRAZY PIECEWISE FUNCTION

1. Names

_____

_____

_____

2. Instructions

Read the problem given below, then work on it with the other members of your group. You should give a complete answer with all of your work shown for each question. It is fine for different people to work on different parts of the question, but you should check each other's work since everyone in the group will receive the same grade for the assignment. If you have any questions, ask the other members of your group first. If all of you are stuck, everyone in the group must raise their hand in order to get help from the professor. Attach this as a cover sheet to the work you turn in.

3. Income Tax Function

In the introduction to section 2.1, you were presented with the income tax function for the U.S. in 2013. A modified (and somewhat prettier) version of a tax function is given by:

$$f(x) = \begin{cases} 0.1x & \text{if } 0 \leq x < 200 \\ 20 + 0.15(x - 200) & \text{if } 200 \leq x < 1000 \\ 140 + 0.2(x - 1000)) & \text{if } 1000 \leq x < 2000 \\ 340 + 0.3(x - 2000) & \text{if } 2000 \leq x < 5000 \\ 1240 + 0.8(x - 5000) & \text{if } x \geq 5000 \end{cases}$$

4. Questions

(1) How much total tax would you pay if you earned \$3500?

(2) (a) How much total tax would you pay if you earned \$7000?

(b) What is your effective tax rate if you earned \$7000? That is, take your answer from part (a) and divide it by 7000 to get a percentage.

(c) What was the tax rate you paid on the 7000th dollar you earned?

(3) Use the online graphing calculator at `www.meta-calculator.com` to graph the piecewise function, and choose a viewing window that gives a good representation of the graph. Take a screen shot of the graph and email it to me at `agrahams@highpoint.edu`. Make sure to CC the other members of your group and/or include their names in the email.