The Great Cookie Bake

Names:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Score: \_\_\_\_\_\_\_/70 points scaled to \_\_\_\_\_/30 points

You are working with Student Government to generate funding for college activities. This year’s big project is going to be a chocolate chip cookie bake and sale. In order to be successful, you will need to meet the profit goal of $900 to $1200, after all expenses are accounted for. You will need to solve the following problems in order to determine expenses, income, profits, and related issues.

1. After accounting for the cost of ingredients for an excellent chocolate chip cookie recipe, you

arrive at the following cost relationship. The cost of ( k ) cookies will be $0.80 each plus a

$275 fixed cost for rental of the kitchen and baking equipment. Write this as an equation, with

the dependent variable C for cost, and the independent variable k for number of cookies

made. (5)

Write and solve an inequality to represent how many cookies you can make for up to $1000

in expenses. (5)

2. Past experience has helped you decide that you should charge $1.25 for each 3” diameter

cookie. If Student Council already has been given a $225 donation to kick off the event, write

an equation that you can use to determine the profit for cookies sold. The dependent variable

S will represent total sales, while the dependent variable k will represent the number of

cookies sold. (5)

Write and solve an inequality to represent how many cookies you would need to sell in order

for your total sales to exceed $1200. (5)

3. You really want to know what the “break-even point” will be; that is how many cookies will you

need to make and sell in order for your Sales to be equal to your Costs. Anything sold over

this amount will result in a profit! In order to find this number you will need to set the Cost and

sales equations equal (Cost C = Sales S) and then solve for the number of cookies (k). (10)

4. What will be your total sales (and cost) for this “break-even” value? Check to see that

both equations give you the same dollar amount. (4)

5. Now that you know how many cookies you need to break even, you can find how many you

will need to generate a profit (P). Profit P is equal to Sales S minus Cost C. Write the profit

equation in simplified form using the equations from questions 1 and 2. (6)

6. Finally you will need to determine the range for the number of cookies you will need to sell

in order to make a profit which is within the goal range of $900 to $1200. This will be a

compound inequality of the form Here “P” is the right-hand side of the

equation from problem 5. (5)

Solve the inequality to determine the range of the number of cookies you need to sell in order

to meet your goal. (10)

7. Summarize your teams results by writing a short paragraph describing the process of finding

cost, sales, and profit equations, what your break-even amount will be, and how you determined

the range of cookies you will need to make and sell in order to meet the Student Government

goal. (15)