M319: AP Computer Science Principles Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Create PT Practice

Letter to Santa Project Date: \_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Letter to Santa Written Responses**

2c) Identify a program code segment that implements an algorithm and that is fundamental for your program to achieve its intended purpose. This code segment must be an algorithm you developed individually on your own, must include two or more algorithms, and must integrate mathematical and/or logical concepts. Describe how each algorithm within your selected algorithm functions independently, as well as in combination with others, to form a new algorithm that helps to achieve the intended purpose of the program *(Must not exceed 200 words)*

In the program, Letter to Santa, the algorithm createLetter() runs and incorporates the functions createBody() and createHeader(). The 1st function createBody() takes the in all the items on the list of item wanted for Christmas that the user typed into the textbox. It then formats it so after a word displays on the div tag of a computer, the next word(if there is one) moves on to the next line and appears. The 2nd function createHeader() takes in the number of items added to the list by the user, and displays it back in a formatted way in a div tag. It displays a letter that starts with Dear Santa, then goes to the next line, and says how many items the person wants for Christmas, It then adds a colon to the end to indicate a list is appearing, which is the createBody() function. Together, these functions work together to make createLetter(), which displays a nice and concise letter to Santa that tells him how many presents the person wants, the items specifically, and the favorite item if the person adds five items to the list.

2d) Identify a program code segment that contains an abstraction you developed individually on your own. This abstraction must integrate mathematical and logical concepts. Explain how your abstraction helped manage the complexity of your program. *(Must not exceed 200 words)*

In my program, the function addItem() is an example of an abstraction. In the function, it grabs on to the item typed into the text box, and adds it to itemArray, which keeps all the items the user wans in an array, and displays which item you added most recently. It then adds to the variable numberOfItem, which helps the computers keep track of the items in the array, and then checks if there are 5 items in the array. If there are 5 items, it runs the function createLetter(). This function as a whole, addItem(), is an abstraction because it is run at least 5 times by he user before a list is made, and is required to be used at least 1 time in order to make a list of items wanted.