MTH 154, Quiz #3, Spring 2023   Name _____KEY_____

Instructions: You must show all work to receive full credit for the problems below. You may use Excel where appropriate. Any datasets needed will be posted on Canvas with the quiz file, and you should submit such work along with your quiz. Round answers to two decimal places unless other instructions are given in the problem. Do not say "see Excel". Paste your answers into the quiz.

1. In the file **154quiz3data.xlsx**, on Sheet 1, use the data on region to create a summary table of counts, and from that, make a pie chart of the data. Which region is most represented? Which one is least represented?

| Row Labels	Count of Region
MidWest	71
NorthEast	115
South	93
West	121
Grand Total	400
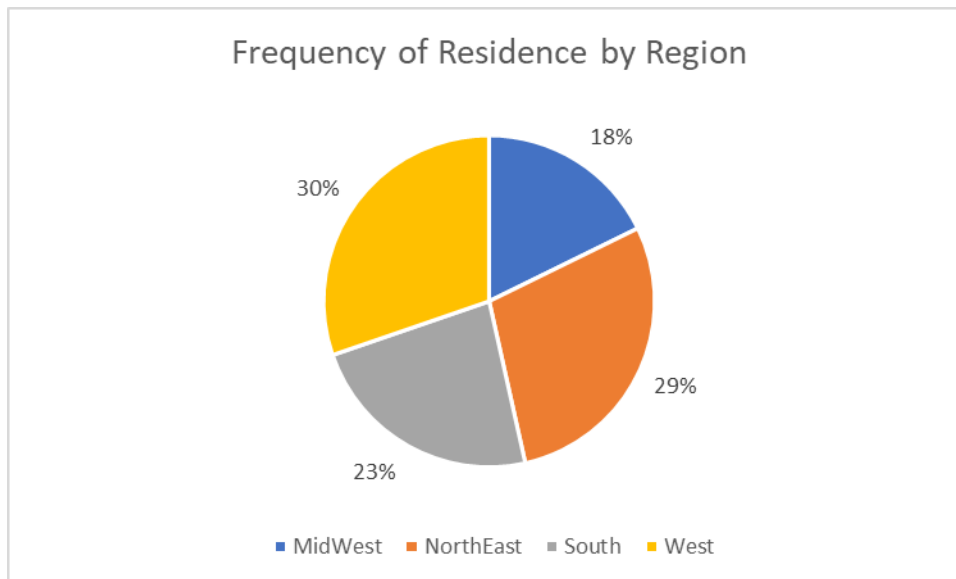
The West has the largest percentage. The MidWest is the smallest.

2. Sort the data on Sheet 2, then use the sorted data to find the 90th percentile of the data set. What is that value?

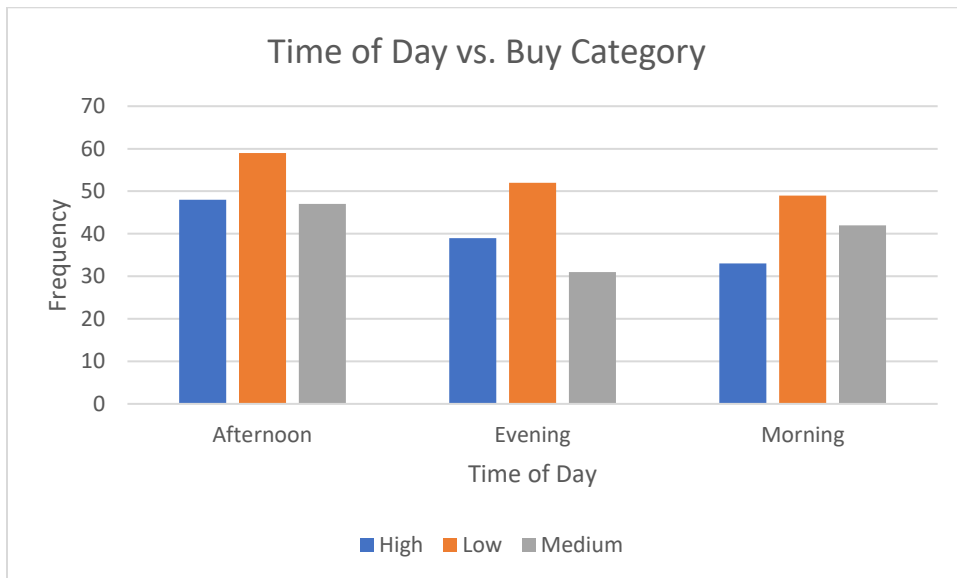0.9*400=360th position (line 361 because of the header)
$185.98

3. Using the data on Sheet 3, make a line graph with the years on the horizontal axis and the percent housing values on the vertical axis. Your line graph should display the data for both Maryland and Virginia. Be sure to include proper axis labels and a title. Write a sentence or two summarizing the graph.

Maryland vs. Virginia over Time

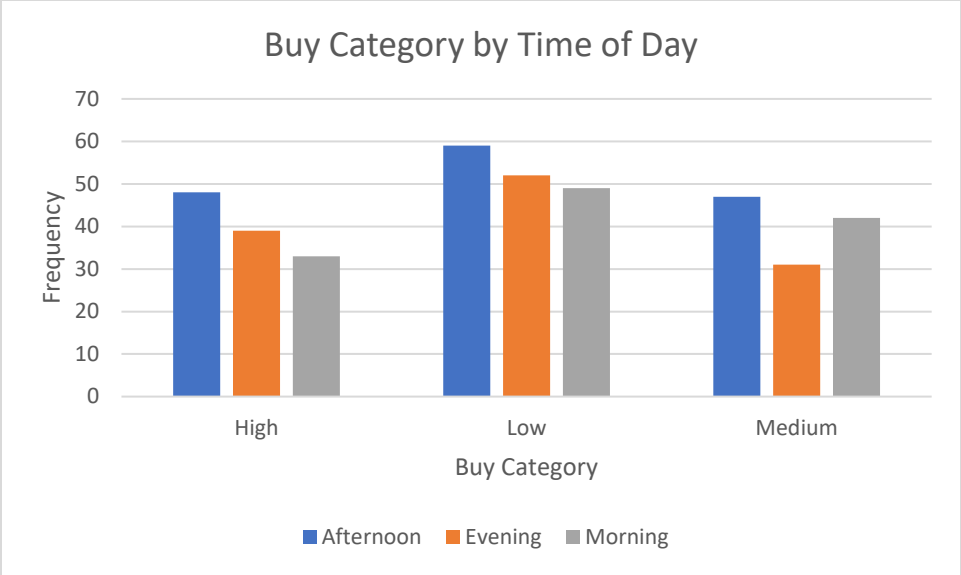Percentage vs. Years
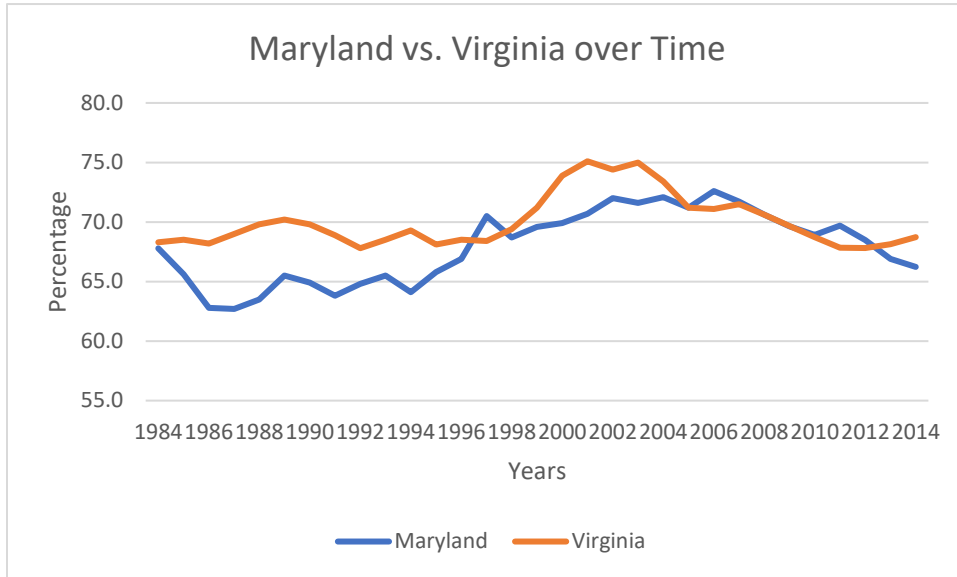
Maryland — Virginia

Until around 1996, Maryland was consistently below Virginia in housing percentage, and then fell back below quickly. After around 2006, the percentages of the two states remained more similar.
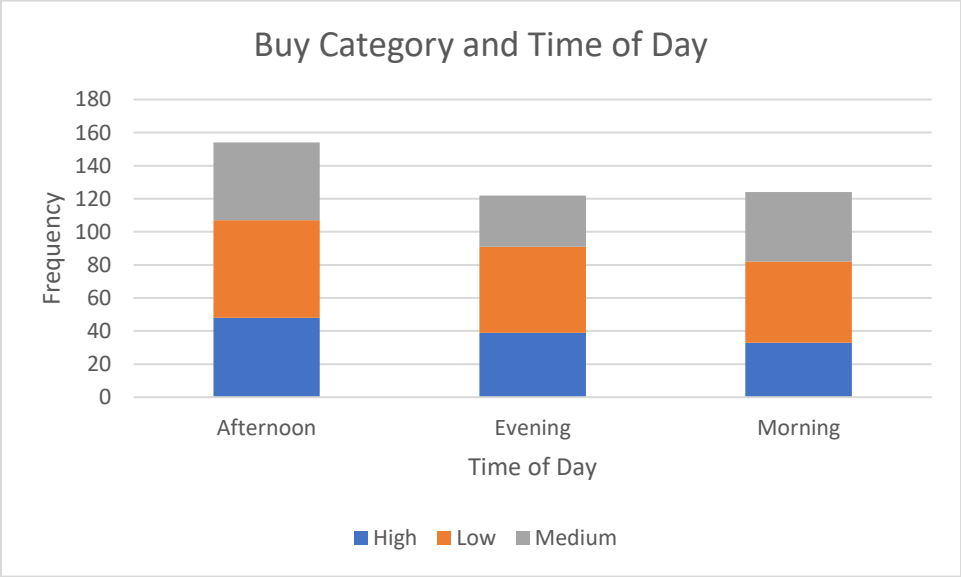
4. On Sheet 4 is data on buy category and time of day. Create a pivot table, and then create two different bar graphs: a) a cluster column graph, b) a stacked column graph of the table. Be sure to label it appropriately with a descriptive title. Write a one or two sentence summary of what each graph means. Explain how the graphs tell a slightly different story than the other one.
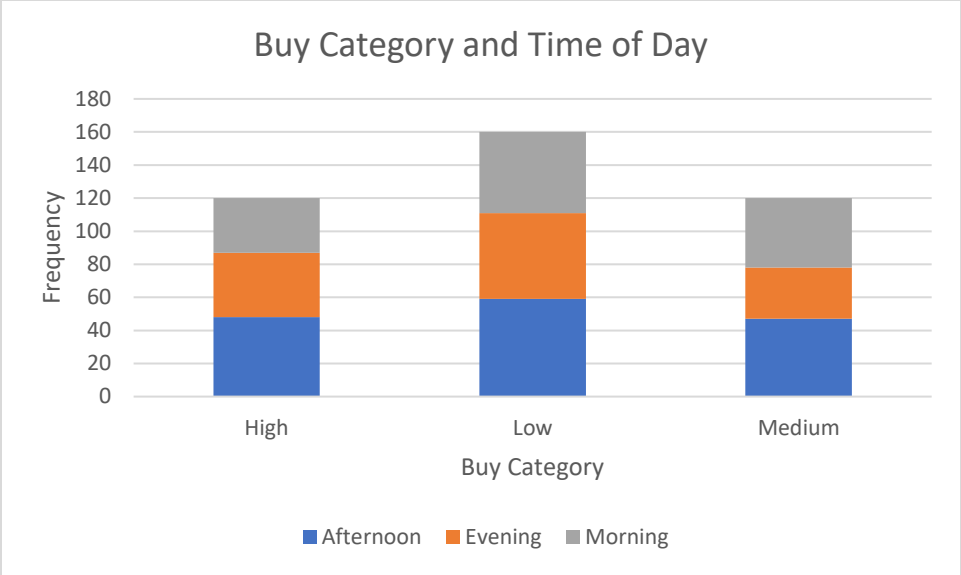
Time of Day vs. Buy Category

Frequency vs. Time of Day

High ■ Low ■ Medium

or

Buy Category by Time of Day

And

Buy Category and Time of Day

or

Buy Category and Time of Day

Frequency (y-axis): 0, 20, 40, 60, 80, 100, 120, 140, 160, 180

Buy Category (x-axis): High, Low, Medium

Legend: ■ Afternoon ■ Evening ■ Morning

The cluster graphs allow us to compare more easily within each category, while the stacked graphs let us compare totals in each category more easily.