Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 45 Midterm Exam

1. The following Standard Deviation Hat Plot compares new and experienced driver’s annual automobile insurance premium. Use the graph to compare the two distributions by filling in the following chart and then answer the question: Do new drivers pay a higher insurance premium than experienced drivers?



|  |  |  |
| --- | --- | --- |
| Experience | Mean | SD |
| New | $3592.62 | $616 |
| Experienced | $2822.92 | $648 |

|  |  |  |
| --- | --- | --- |
|  | New | Experienced |
| Shape (any outliers?) |  |  |
| Center (Use the mean as a representative or typical measurement) |  |  |
| Spread (min to max interval and overall range, SD, along with an interval of typical measurements given by mean ± SD).  |  |  |
| Other observations that will be useful in supporting your thesis.  |  |  |

Write a paragraph that answers the question: Do new drivers pay a higher insurance premium than experienced drivers? Use all relevant information from the chart above and explain how you come to your conclusion.

2. Here are the weekly payrolls for two imaginary restaurants, Mooseburger and McTofu:

|  |  |
| --- | --- |
| Mooseburger | McTofu |
| Ernie $110 | Uta $100 |
| Isaac $120 | Nate $107 |
| Juan $123 | Ken $110 |
| Al $130 | Latisha $115 |
| Francois $132 | Quentin $117 |
| Boris $136 | Otto $120 |
| Gloria $140 | Maria $129 |
| Connie $144 | Ted $130 |
| Dwight $150 | Rosa $132 |
| Horace $160 | Pablo $146 |
|  | Sally $360 |

a) Find the 5 Number Summaries for each restaurant:

|  |  |  |
| --- | --- | --- |
|   | M-burgers | McTofu |
| Min |   |   |
| Q1 |   |   |
| Median |   |   |
| Q3 |   |   |
| Max |   |   |

b) Create side-by-side boxplots on the axis provided (make it horizontal with Mooseburger’s boxplot on top and McTofu’s on bottom):

M-burger

McTofu



c) Which restaurant pays the highest mean salary? Why is the mean salary misleading?

d) Which restaurant pays its employees more? Write a paragraph explaining your answer. Use all relevant information about shape, center and spread and if you use quartiles in a unique way to compare the distributions and provide evidence in support of the thesis, you will get bonus points.