Name: ANSWER KEY Math 082 Practice Exam #3

1. Determine if the following variables are Categorical, Quantitative Continuous, or Quantitative Discrete. (2 pts each)

a. Months people were born in Categorical

b. Number of tests you have this week Quantitative Discrete

c. Time it takes to get to work in minutes Quantitative Continuous

d. Eye Color Categorical

2. Name two graphs you could use to display categorical data. (3 pts)

Bar Graphs, Pie Charts, Frequency Tables (Any two of these)

2. A group of students recorded the colors of cars in a parking lot. Their results are show below.

White: 8/50 = 16%

Silver: 11/50 = 22%

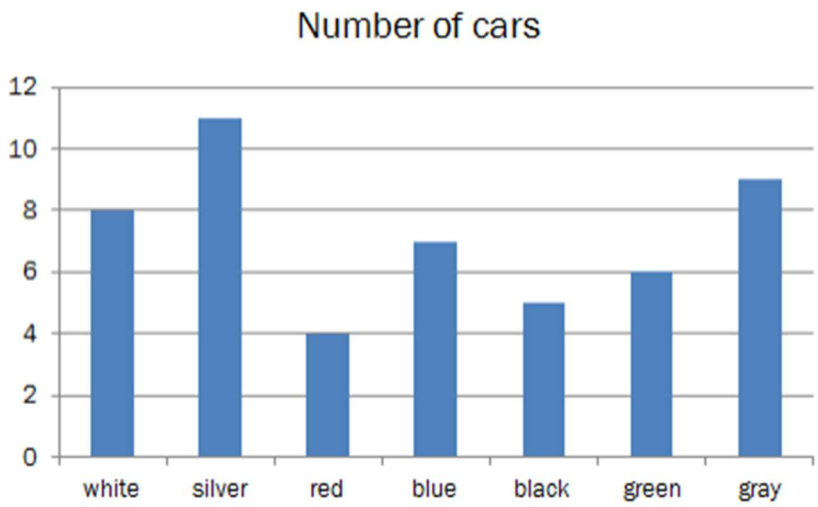
Red: 4/50 = 8%

Blue: 7/50 = 14%

Black: 5/50 = 10%

Green: 6/50 = 12%

Gray: 9/50 = 18%



a. What is the relative frequency for each category? (You can fill in the lines next to the graph) (5 pts.)

See Lines on Side of Graph

b. What percentage of the cars were white? (3 pts) 16% of cars were white

3) Kyle and Ryan take entrance exams at two different universities. Kyle scores a 499 on an exam with a mean of 395 and a standard deviation of 71, while Ryan scores a 39 on an exam with a mean of 32 and a standard deviation of 2.5. Which do you think is more likely to be accepted at the university of his choice and why? (6 points)

Kyle: Z = (499 - 395)/71
Z = 1.46

Ryan: Z = (39 - 32)/2.5
Z = 2.80

Ryan's scores is more likely to be accepted because it is 2.8 standard deviations above the mean where as Kyle's is only 1.46 standard deviations above the mean.

4) The following are the ages of five dogs in a recent study. 15, 10, 5, 7, 13

a. Find the mean. (3 pts)

Add up the numbers and divide by 5: 50/5 = 10

b. Find the Standard Deviation. (4 pts)

Take the square root of the sum of:

$$\sqrt{\frac{(15-10)^2 + (10 - 10)^2 + (5 - 10)^2 + (7 - 10)^2 + (13 - 10)^2}{4}} \approx 4.123$$

5) Kate met with her son's Math class teacher at parent conferences. The teacher told Kate that her son got 78, 89, 63, and 82 on his first four tests.

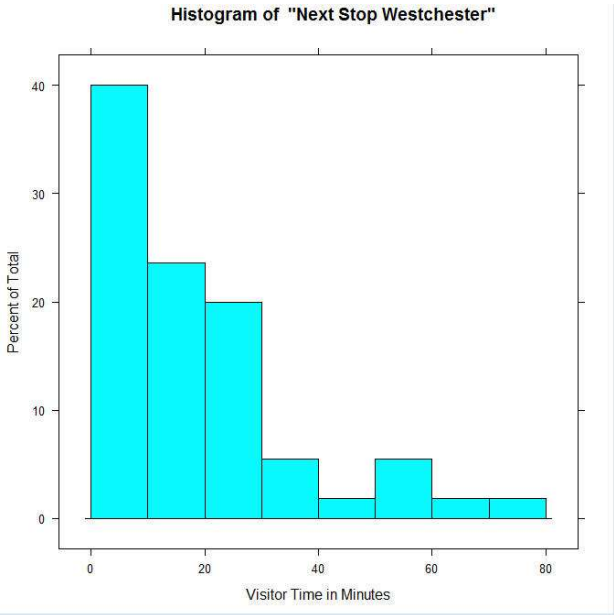
a. Find the median of his test scores (3 pts)

Since there are two numbers in the middle (78 and 82) you add them and divide by 2.
Median is 80

b. Find the range of his test scores (2 pts)

Range is Max - Min
so the Range is 26.

6) Given the distribution below, state the shape of the histogram (skewed left, skewed right or symmetric), then state how the mean compares to the median. (6 pts)



The graph is skewed to the right,
which means that the mean will be greater than the median.

mean > median

7) Compute the <u>5-Number Summary</u>, <u>IQR</u>, <u>Mean</u>, and then use the statistics you calculated to <u>describe the shape of the distribution</u> for the set of values below: (10 pts.)

{1, 2, 4, 8, 12, 14, 18, 22, 26, 30}

Min = 1
Q1 = 4
Median = 13
Q3 = 22
Max = 30

IQR = Q3 - Q1 = 18

Mean is 13.7

Since the mean is greater than the median
the distribution would be skewed to the right.

8) The tallest living man has a height of 98 inches. The tallest living woman is 84 inches tall. Heights of men have a mean of 69 inches and a standard deviation of 3 inches. Heights of women have a mean of 64 inches and a standard deviation of 2.5 inches. Relative to the population of the same gender, find who is taller. (5 pts)

Male: Z = (98 - 69)/3
Z = 9.67

Female: Z = (84 - 64)/2.5
Z = 8

The male is taller relative to people of the same gender

- Explain what the Z-Score for the tallest man is telling us. (2 pts)

The z-score is telling us that this man is 9.67 standard deviations above the mean.

FORMULAS

Mean: $\sum \frac{x_i}{n}$

Standard Deviation: $\sqrt{\frac{\Sigma(x_i-\mu)^2}{n}}$

Z-Score: $\frac{x-mea}{S.D}$

OVERALL SCORE: _____/60 = _____%