Name: _____
Date: _____

Quiz 3 – B

1. Let's say you have a Normal data distribution. What is the best measure of:

   A. Center? Explain.

   B. Spread? Explain.

2. Sketch a diagram of any bimodal distribution you choose below. Label the axes with variables and measurements that make sense. Mark, by estimation, the approximate locations of the mean and median. Mark, by estimation, mean ± 1 standard deviation.

3. Given a distribution of grip strengths with a standard deviation of 7kg and a mean of 40kg:

   A. Give the z-score of someone who has a grip strength of 50kg.

   B. Give the z-score of someone who has a grip strength of 28kg.

   C. Give the grip strength of someone with a z-score of 2.2.

   D. Give the grip strength of someone with a z-score of -0.7.

4. For the following distribution, the average length (in inches) of beagles' tails:

7 7.1 7.2 7.4 7.5 7.7 7.8 9 10.3

A. Calculate the median.

B. Calculate Q1.

C. Calculate Q3.

D. Calculate the interquartile range.

E. Decide whether any data points are outliers. Show mathematical work to justify your answer

5. Make a histogram of the following data, the number of patients a primary care doctor sees in one day:

20 20 21 22 23 24 24 24 24 25 26 26

Make an appropriate number of bins. Label your histogram clearly.

Quiz 3 – B – answer key

1. F
   A. Mean. Because Normally distributed data is symmetrical, the mean is appropriate.
   B. Standard deviation. Because Normally distributed data is centrally clumped, standard deviation is appropriate.

2. Answers will vary.

3.
   A. 1.43
   B. -1.71
   C. 55.4
   D. 35.1

4.
   A. 7.5
   B. 7.15
   C. 8.4
   D. 1.25
   E. $1.5 \times 1.25 + 8.4 = 10.275$. The point 10.3 is just beyond this upper limit, so is an outlier.

5. Three (or four) bins would be appropriate for this data ($\sqrt{12} \approx 3.46$).

