Unit 5: Statistical Reasoning
Midterm Review 2015

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

1. The heights of all students in a class were measured. It was later discovered that the measuring tape used was inaccurate and 5mm had to be added to each person's height. Which calculation would stay the same based on the new height measures?

   A) central tendency B) mean C) median D) standard deviation

2. Which set of data has the **lowest** standard deviation?

   A) { 0.1, 0.2, 0.3, 0.4, 0.5 }
   B) { 3.5, 3.6, 3.7, 3.8, 3.9 }
   C) { 4, 4, 5, 5, 6 }
   D) { 9, 9, 9, 9, 9 }

3. The class results for a chemistry test had a mean of 62% and a standard deviation of 5%. If Alex scored $\mu + 2\sigma$, what percent did he receive on the test?

   A) 52% B) 67% C) 72% D) 95%

4. The number of goals by all hockey players in the NHL is normally distributed. The mean number of goals is 18 with a standard deviation of 4 goals. In what range would 68% of the players score?

   A) 10 to 22 B) 10 to 26 C) 14 to 22 D) 14 to 26

5. What percent of data lie within one standard deviation of the mean?

   A) 34% B) 50% C) 68% D) 95%

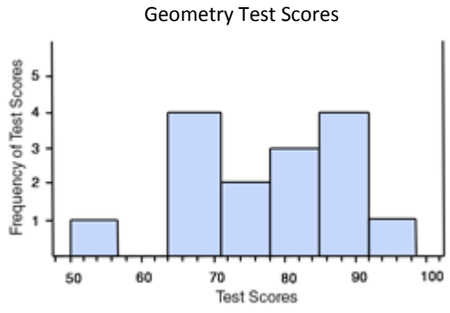
6. This histogram represents the scores from the last geometry test. It is graphed with an interval width of 7. How many students took the test?

   A) 6

   B) 14

   C) 15

   D) 50



7. Determine the **range**, **mean, median** and **mode** of the following test scores.

Chapter 1 Test Scores (out of 100)

90	84	77	66
89	84	77	65
86	82	75	65
86	81	72	61
84	79	70	56

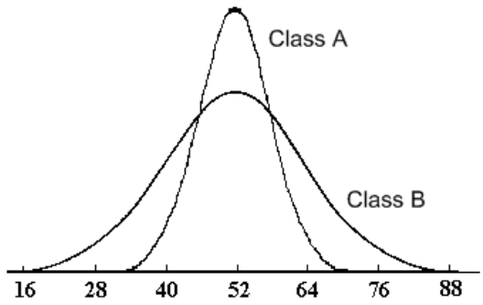
8. The results of a math unit test are normally distributed with a mean score of 76 and a standard deviation of 7.

A) Draw and label the normal curve to represent this data.

B) What percent of the students scored between 62 and 83?

C). If there were 32 students in the class, **how many** students scored between 62 and 83?

9. The graph to the right shows the scores on a standardized test, normally distributed, for two classes.



A) What do these graphs have in common?

B) Which graph has the greatest standard deviation? Why?

C) If a student scored 53 on a test, which class are they most likely in? Explain your answer.

10. Janine has 20 minutes to get to her after-school job. Despite her best efforts, she is frequently late. Her employer says that unless she arrives to work on time consistently, she will lose her job. She has recorded her travel times (in minutes) for the past 7 shifts: 18, 20, 22, 27, 19, 23, 25. Over the next 7 shifts, she continues to record her travel times: 20, 22, 19, 20, 23, 16, 25. Do you think Janine will lose her job? Use standard deviation to justify your answer.