

You MUST use good notation **Math 102** Name _____
and show appropriate work. (Section 14.3)

Measures of Dispersion

1. Recall that on the last worksheet the data sets $A = \{5, 6, 8, 8, 10, 11\}$ and $B = \{2, 4, 8, 8, 9, 17\}$ had common measures of central tendencies. Calculate the range and standard deviation of each of the data sets.

$$\text{range}(A) = \underline{\hspace{2cm}}$$

$$\text{range}(B) = \underline{\hspace{2cm}}$$

$$s_A = \underline{\hspace{2cm}}$$

$$s_B = \underline{\hspace{2cm}}$$

2. Let $A = \{2, 5, 8, 9\}$, $B = \{7, 10, 13, 14\}$ and $C = \{6, 15, 24, 27\}$. Note: Each element of B is 5 greater than the corresponding value in A and each element of C is 3 times the corresponding element in A .

- a) Calculate the mean and standard deviation for each of the above sets.

$$\bar{x}_A = \underline{\hspace{2cm}}$$

$$\bar{x}_B = \underline{\hspace{2cm}}$$

$$\bar{x}_C = \underline{\hspace{2cm}}$$

$$s_A = \underline{\hspace{2cm}}$$

$$s_B = \underline{\hspace{2cm}}$$

$$s_C = \underline{\hspace{2cm}}$$

- b) Compare the results for data sets B and C to the results associated with data set A . Use your visual comparisons to suggest answers to the following questions. Write complete sentences.

- i) Suppose a constant is added to each element of a data set in order to form a new data set. What effect does addition of a constant to each term have on the mean? standard deviation?

- ii) Suppose each member of a data set is multiplied by a positive constant to form a new data set. Describe the effect on the mean and on the standard deviation.