Name _____   Date _____

Mean and Standard Deviation Distributions- Step-by-Step Lesson

Consider the following three Data Sets A, B, and C.

A= {4, 8, 10, 11, 12}

B = {5, 5, 5, 5, 5}

C = {3, 2, 10, 15, 15}

a) Calculate the mean of each data set.

b) Calculate the standard deviation of each data set.

c) Which set has the largest standard deviation?

d) Is it possible to answer question "c" without calculations of the standard deviation?

Explanation:

Step1) a. Mean of Data Set A = (4 + 8 + 10 + 11 + 12) /5 = 9

Mean of Data Set B = (5 + 5 + 5 + 5 + 5) /5 = 5

Mean of Data Set C = (3 + 2 + 10 + 15 + 15) /5 = 9

Step 2) b. Standard Deviation Data Set A

$= \sqrt{[((4 - 9)^2 + (8 - 9)^2 + (10 - 9)^2 + (11 - 9)^2 + (12 - 9)^2) \div 5]} = 2.83$

Standard Deviation Data Set B

$= \sqrt{[(5 - 5)^2 + (5 - 5)^2 + (5 - 5)^2 + (5 - 5)^2 + (5 - 5)^2]} = 0$

Standard Deviation Data Set C

$= \sqrt{[((3 - 9)^2 + (2 - 9)^2 + (10 - 9)^2 + (15 - 9)^2 + (15- 9)^2) \div 5]} = 5.62$

c. Data Set C has largest standard deviation.

d. Yes. Data set C has values further away from mean than A and B.