Bellwork   Alg 2B   Monday, April 30, 2018

1. Use these two sets of data:

Set A: 23, 14, 18, 26, 29, 30, 20, 19, 27, 25

Set B: 44, 44, 40, 39, 48, 46, 41, 45, 49, 47, 44

Which set of data has more variation? Explain your answer.

Use this data for 2-4: 28, 29, 29, 31, 32, 32, 34, 35, 36, 38, 40, 43, 43, 44, 47, 48, 50, 51, 55, 59

2. What percentile is 43 at?

3. What number is at the 30th percentile?

4. 59 is at what percentile?

Use this data for 5-8. Weights of boxes of cereal (in ounces):

12.9, 13.4, 13.6, 13.9, 14.5, 14.6, 14.6, 14.7, 14.9, 15, 15.2, 15.4, 15.5, 15.5, 15.9, 16, 16, 16.1, 16.3, 16.4, 16.4, 17.5

$\bar{x} = 15.2$ $\sigma = 1.1$

5. Find the z-score for a box that weighs 17 oz. Round to a tenth.

6. If the z-score of a box is -1.7 find the weight of the box to the nearesth tenth.

7. Find the percent of data withing one standard deviation of the mean.

8. Find the percent of data withing two standard deviations of the mean.

9. A manufacturer tests items coming off of the assembly line to make sure their product is reliable. This is the job of a person in Quality Control. A sample of 61 items shows that 2 are defective. An order of 1000 items will be shipped out next week. The customer will send back the shipment if more than 25 of the items are defective. Should the manufacturer be worried that this shipment will be returned? Explain your answer.

1. Use these two sets of data:

Set A: $23, 14, 18, 26, 29, 30, 20, 19, 27, 25$ $\sigma = 4.95$

Set B: $44, 44, 40, 39, 48, 46, 41, 45, 49, 47, 44$ $\sigma = 3.08$

Which set of data has more variation? Explain your answer.

SET A because it has a greater standard deviation

Use this data for 2-4: $28, 29, 29, 31, 32, 32, 34, 35, 36, 38, 40, 43, 43, 44, 47, 48, 50, 51, 55, 59$ 20 #s

2. What percentile is 43 at? $\dfrac{11}{20} =$ 55th percentile

3. What number is at the 30th percentile? $(.30)(20) = 6 \longrightarrow$ 34 is at the 30th percentile b/c 6/20 #s are below it.

4. 59 is at what percentile? $\dfrac{19}{20} =$ 95th percentile

Use this data for 5-8. Weights of boxes of cereal (in ounces):

$12.9, 13.4, 13.6, 13.9, 14.5, 14.6, 14.6, 14.7, 14.9, 15, 15.2, 15.4, 15.5, 15.5, 15.9,$
$16, 16, 16.1, 16.3, 16.4, 16.4, 17.5$

$$Z = \frac{X - \bar{X}}{\sigma}$$

$\bar{x} = 15.2$ $\sigma = 1.1$

5. Find the z-score for a box that weighs 17 oz. Round to a tenth.

$\dfrac{17 - 15.2}{1.1}$ $Z = 1.6$

6. If the z-score of a box is -1.7 find the weight of the box to the nearesth tenth.

$\dfrac{X - 15.2}{1.1} = -1.7$ 13.3 oz

7. Find the percent of data withing one standard deviation of the mean.

$\bar{X} \pm 1\sigma =$ 14.1 oz to 16.3 oz $\longrightarrow \dfrac{15}{22} =$ 68.2%

8. Find the percent of data withing two standard deviations of the mean.

$\bar{X} \pm 2\sigma =$ 13 oz to 17.4 oz $\longrightarrow \dfrac{20}{22} =$ 90.9%

9. A manufacturer tests items coming off of the assembly line to make sure their product is reliable. This is the job of a person in Quality Control. A sample of 61 items shows that 2 are defective. An order of 1000 items will be shipped out next week. The customer will send back the shipment if more than 25 of the items are defective. Should the manufacturer be worried that this shipment will be returned? Explain your answer.

$\dfrac{2 \text{ defective}}{61 \text{ TOT}} = \dfrac{X}{1000 \text{ TOT}} \longrightarrow \approx 33 \text{ defective}$

this shipment will be returned!

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