

ALGEBRA II

Chapter 11 section 1 - Find Measures of Central Tendency and Dispersion

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WARM – UP:

Simplify the expression. Round the answer to the nearest tenth.

1. $\sqrt{\frac{145}{10}}$ _____

2. $\sqrt{\frac{402}{8}}$ _____

3. The monthly profit from team jackets can be modeled by $1600 - (p - 60)$, where p is the price in dollars of a jacket. What is the value of the expression when $p = 80$?

VOCAB:

Statistics: numerical values used to summarize and compare sets of data

Measure of Central Tendency: numbers used to represent the middle (central) of a data set

Mean: average; \bar{x} ; add all numbers and divide by how many there are

Median: middle – when numbers are put in order small → big

Mode: most occurring values

Measure of Dispersion: statistic that shows how spread out the values are

Range: largest value minus smallest value

Standard Deviation: typical difference (or σ (deviation)) between a data value and the mean \bar{x}

Outlier: a value that is much larger than or much less than most of the other values in a data set

NOTES:

The data sets give the times in minutes for runners in two races. Find the mean, median, mode(s), and range of each data set, and the standard deviation.

RACE A	RACE B
4, 7, 8, 8, 9, 9, 10, 11, 12	5, 6, 6, 7, 8, 8, 8, 10, 11

Mean (\bar{x}) A _____ B _____

Median A _____ B _____

Mode A _____ B _____

Range A _____ B _____

Standard Deviation (σ) A _____ B _____

Standard Deviation by hand: $\sigma = \sqrt{\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots}{n}}$

Steps:

1. find the mean \bar{x}
2. do $x - \bar{x}$ for each value and square each square each answer
3. add above answers
4. divide by # of terms
5. square root the answers

You are training for a triathlon. The miles that you ride your bicycle for 7 weeks are 17, 20, 16, 18, 22, 19, and 20.

Find the mean, median, mode, range, and standard deviation.

\bar{x} _____ Median _____ Mode _____ Range _____ σ _____

Your mileage the next week is an outlier, 3. Find the new mean, median, mode, range, and standard deviation.

\bar{x} _____ Median _____ Mode _____ Range _____ σ _____

Which measure of central tendency does the outlier affect the most? _____ The least? _____

How does the outlier change the range and standard deviation? _____

What questions do you have? So you don't forget to ask!