**Standard Deviation**

* Standard deviation is a measure of how close or how far away the data values are from the mean (average).
* If the standard deviation is \_\_\_\_\_\_\_, then it indicates that most data values are close to the mean. The data is more consistent. (most consistent = lowest standard deviation)
* If the standard deviation is \_\_\_\_\_\_\_, then it indicates that most data values are scattered farther from the mean.
* The symbol for standard deviation is  and is called **sigma**.
* Example: Textbook p. 255-256 Comparing Sets of Raw Data

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Player** |  |  |  |  |  |  |  |  |  |  | **Range** | **Mean** | **Standard Deviation** |
| Anna | 36 | 41 | 43 | 39 | 45 | 27 | 40 | 37 | 31 | 28 |  |  |  |
| Patrice | 36 | 39 | 36 | 38 | 35 | 37 | 35 | 36 | 38 | 34 |  |  |  |
| Morgan | 34 | 41 | 38 | 37 | 48 | 19 | 33 | 43 | 21 | 44 |  |  |  |
| Paige | 34 | 35 | 33 | 35 | 33 | 34 | 33 | 35 | 34 | 33 |  |  |  |
| Star | 41 | 33 | 39 | 36 | 38 | 36 | 29 | 34 | 38 | 39 |  |  |  |

1) Determine the range, the mean ( ), and the standarddeviation  for each player.Record the

 results in the chart.

2) Who is the most consistent shooter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Would you use her as the substitute? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) Which player has the greatest percent range? \_\_\_\_\_\_\_\_\_

 Which player has the least percent range? \_\_\_\_\_\_\_\_\_\_

 How do their standard deviations compare? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) Compare the standard deviations of all the players. Who has the lowest? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 What does this imply about her shooting consistency? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) Which player has the potential to shoot most poorly? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Which player has the potential to shoot most successfully? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*6) If you were the coach, which player would you substitute into the game? Explain why. \_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example 2: Comparing Grouped Data Using Mean and Standard Deviation (Frequency Table)

p. 257

|  |  |  |
| --- | --- | --- |
| **Gaming Hours/Week for gr. 11 Females** |  |  |
| Hours | Frequency | Midpoint of Interval |
| 3-5 | 7 |  |
| 5-7 | 11 |  |
| 7-9 | 16 |  |
| 9-11 | 19 |  |
| 11-13 | 12 |  |
| 13-15 | 5 |  |

 What is different about this table compared to example 1?

 Summarize the results:

 Males: Females:

 Mean \_\_\_\_\_ Mean \_\_\_\_\_\_\_\_

 Standard Deviation \_\_\_\_\_\_ Standard Deviation \_\_\_\_\_\_

 Conclusions about the male and female players:

Discuss example p. 256.