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Assessing Overlapping Data Sets - Step-by-Step Lesson

Mike is a statistician. He wanted to compare the average height of some of the players on his favorite baseball and football teams. Because football is characteristically played by larger athletes, he thinks that there will be a greater variability in the heights of football players as compared to baseball players. He used the heights that were listed in the game time team programs to determine the heights of the players.

Football Team – Height of Players in inches

60, 62, 65, 74, 71, 69, 64, 67

Baseball Team – Height of Players in inches

74, 73, 62, 68, 65, 70, 64, 75

Mike creates a two dot plots on the same scale. The shortest player is 60 inches and the tallest players are 75 inches.

1. Which team's average player is taller?

2. What is the height difference between the average players on both teams?

3. The football team's best three players are 62, 71, and 74 inches tall. The baseball team's best three players are 68, 70, and 74 inches tall. Which team has a greater variability of heights for their top 3 players? Explain your answer.

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Explanation:

1. The mean height of the football players is 66.5 inches as compared to the mean height of the baseball players at 68.875 inches**.** The average baseball player is taller in this case.

2. The height difference of average players is:

Baseball average height – football average height **=** height difference

68.875 inches – 66.5 inches **=** 2.375 inches

3. The mean absolute deviation (MAD) tells us the degree of variability of any data set. The greater the MAD value, the more variability. We can calculate the MAD for each set by:

1. Find the mean of each set:

Football: 62, 71, 74 Mean = (62 + 71+ 74) / 3 = 69

Baseball: 68, 70, 74 Mean = (68 + 70 + 74) / 3 = 70.67

2. Determine the deviation of each variable from the mean:

Football: 62 – 69= -7 71 – 69= 2 74 – 69= 5

Baseball: 68 – 70.67 = -2.67 70 – 70.67= -.67 74 – 70.67= 3.33

3. Make all the values from number 2 absolute and average them to find the MAD.

Football: (7 + 2 + 5) / 3 = 4.66

Baseball: (2.67 + .67 + 3.33) / 3 = 2.22

The MAD of the top 3 football players (4.66) is much larger than the MAD of top 3 baseball players (2.22). This indicates that there is more variability between the football players.