

12.3 Comparing Data Sets

Math 7

Compare the data sets.

Solutions

12.3 Practice

1. The heights of boys and girls are collected in a 7th grade class.

Boys: 56, 58, 59, 60, 62, 63, 64

Girls: 49, 52, 52, 54, 61, 68

	BOYS	GIRLS
Shape	<p>Finish the bar graph and describe the shape</p> <p>Height (inches)</p> <p>No specific pattern</p>	<p>Finish the bar graph and describe the shape</p> <p>Height (inches)</p> <p>Slightly skewed right</p>
Outlier	no outliers	68
Center	<p>Mean: $\frac{56+58+59+60+62+63+64}{7}$</p> $\frac{422}{7} = 60.2857$ <p>Median: 60</p> <p>Mode: none</p>	<p>Mean: $\frac{49+52+52+54+61+68}{6}$</p> $\frac{336}{6} = 56$ <p>Median: $\frac{52+54}{2} = 53$</p> <p>Mode: 52</p>

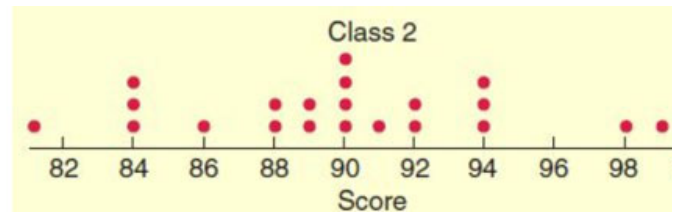
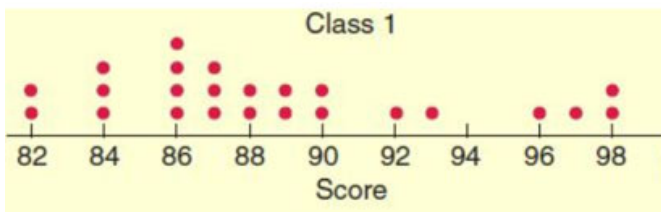
Spread	Range: $64 - 56 = 8$	Range: $68 - 49 = 19$
	MAD: $ 56 - 60.29 = 4.29$ $ 58 - 60.29 = 2.29$ $ 59 - 60.29 = 1.29$ $ 60 - 60.29 = 0.29$ $ 62 - 60.29 = 1.71$ $ 63 - 60.29 = 2.71$ $ 64 - 60.29 = 3.71$ $\frac{16.29}{7} \approx 2.327$	MAD: $ 49 - 56 = 7$ $ 52 - 56 = 4$ $ 52 - 56 = 4$ $ 54 - 56 = 2$ $ 61 - 56 = 5$ $ 68 - 56 = 12$ $\frac{34}{6} \approx 5.6667$

Your answer will be more accurate if you used 60.2857 as the mean instead of the rounded 60.29.

Based on the data sets, are boys taller than girls in this 7th grade class? Explain!!!

- The boys in this 7th grade class do appear to be taller. The average for boys is 60.29 versus the girls 56.
- The girls average is being pulled up by one tall girl. 68 inches is an outlier so we should compare the medians in which the boys is taller.
- Also, the boys tend to be grouped together more closely than the girls. Both the girls range and MAD is bigger than the boys which means the girls have more variability in their data.

2. The test scores of two 7th grade classes are shown below.



82,82,84,84,84,84,86,86,86,86,86,87,87,87,87,88,88,88,89,89,90,90,90,92,93,96,97,98,98

81,84,84,84,86,88,88,88,89,89,90,90,90,90,91,92,92,94,94,94,98,99,100,100,100

	CLASS 1	CLASS 2
Shape	Slightly skewed right	No specific pattern
Outlier	None	none

Center	Mean: $\frac{2129}{24} = 88.59$ Median: $\frac{87+88}{2} = 87.5$ Mode: 86	Mean: $\frac{2187}{24} = 91.125$ Median: $\frac{90+90}{2} = 90$ Mode: 90
Spread	Range: $98 - 82 = 16$ MAD: $\frac{89.83}{24} = 3.747$	Range: $100 - 81 = 19$ MAD: $\frac{103.5}{24} = 4.3125$

Based on the data sets, which 7th grade class did better on the test? Explain!!!

The data would indicate that class 2 scored better. Class 2 scores are more spread out as shown by the larger spread in both range and Mean Absolute Deviation than class 1. Class 2's average was higher and the distribution shows a main cluster of students scoring between 88-92. Class 1's distribution looks a bit skewed to the right with most students scoring between 86-90.