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| Describe Population Distribution |

**Population: (**Granada Hills Charter High School Female & Male Students in Physical Education Classes**)**

**Variable:** **(**Mile Times**)**  **Type:** Quantitative, Minutes, Discrete

**Shape:** A histogram was examined to determine the shape of the distribution. The histogram was displayed using a bin width of 20 **(**Half-Minute**)** increments.

All of these plots were found to be **uni**modal and highly skew right.

The Fisher skew statistic was **0.57**. This statistic fell outside the computed range of **-.17 to +.17;** indicating that the distribution’s shape is highly skew right.

**Center:** Mean = **9.00** (Minutes), Median = **8.93** (Minutes), Mode = **9.00** (Minutes)

The best measure of central tendency is the median because the distribution is skewed. This skew right shape causes the mean to be greater than the median.

**Spread:** Range = **10.25** (Minutes), IQR = **2.23** (Minutes),  **1.70**(Minutes)

The best measure of spread is the range and interquartile range because the distribution is skewed.

**Outliers:** IQR Method: Adding 1.5 times the IQR to the third quartile value of **10.05** (Minutes) results in an upper outlier threshold of **13.40** (Minutes). Subtracting 1.5 times the IQR from the first quartile value of **7.82** (Minutes) results in a lower outlier threshold of **4.47** (Minutes). Examination of the data found 15 outliers that exceeded these thresholds, 13.5, 13.5, 13.5, 14, 14, 14, 14, 14.2, 14.3, 14.7, 14.9, 15, 15, 15, 15.

Standard Deviation () Method: Adding and subtracting three standard deviations from the mean of **9.00** (Minutes) establishes an upper outlier threshold of **14.09** (Minutes) and a lower threshold of **3.91**(Minutes). Examination of the data found 12 outliers that exceeded these thresholds, 14, 14, 14, 14, 14.2, 14.3, 14.7, 14.9, 15, 15, 15, 15.

The best measure of outliers is the IQR Method because the distribution is skewed.

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| Describe Population Distribution |

**Population: (**Granada Hills Charter High School Female Students in Physical Education Classes**)**

**Variable:** **(**Mile Times**)**  **Type:** Quantitative, Ratio, Discrete

**Shape:** A histogram was examined to determine the shape of the distribution. The histogram was displayed using a bin width of 20 **(**Minute**)** increments.

All of these plots were found to be **uni**modal and highly skew right.

The Fisher skew statistic was **0.47**. This statistic fell inside the computed range of **-1.78 to +1.78;** indicating that the distribution’s shape is near symmetric.

**Center:** Mean = **9.69** (Minutes), Median = **9.73** (Minutes), Mode = **8.70** (Minutes)

The best measure of central tendency is the mean because the distribution is symmetric. This symmetric shape causes the mean to be less than the median.

**Spread:** Range = **9.40** (Minutes), IQR = **1.74** (Minutes),  **1.43**(Minutes)

The best measure of spread is the standard deviation because the distribution is symmetric.

**Outliers:** IQR Method: Adding 1.5 times the IQR to the third quartile value of **10.49** (Minutes) results in an upper outlier threshold of **13.09** (Minutes). Subtracting 1.5 times the IQR from the first quartile value of **8.75** (Minutes) results in a lower outlier threshold of **6.14** (Minutes). Examination of the data found 11 outliers that exceeded these thresholds, 5.6, 5.7, 13.2, 13.2, 13.5, 13.5, 14.2, 14.3, 14.7, 14.9, 15.

Standard Deviation () Method: Adding and subtracting three standard deviations from the mean of **9.69** (Minutes) establishes an upper outlier threshold of **13.99** (Minutes) and a lower threshold of **5.39**(Minutes). Examination of the data found 5 outliers that exceeded these thresholds, 14.2, 14.3, 14.7, 14.9, 15.

The best measure of outliers is the Standard Deviation Method because the distribution is Symmetric.

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| Describe Population Distribution |

**Population: (**Granada Hills Charter High School Male Students in Physical Education Classes**)**

**Variable:** **(**Mile Times**)**  **Type:** Quantitative, Minutes, Discrete

**Shape:** A histogram was examined to determine the shape of the distribution. The histogram was displayed using a bin width of 20 **(**Half-Minute**)** increments.

All of these plots were found to be **uni**modal and highly skew right.

The Fisher skew statistic was **1.30**. This statistic fell inside the range of **-1.56 to +1.56;** indicating that the distribution’s shape is slightly skew right.

**Center:** Mean = **8.27** (Minutes), Median = **8.05** (Minutes), Mode = **7.00** (Minutes)

The best measure of central tendency is the median because the distribution is skewed. This skew right shape causes the mean to be greater than the median.

**Spread:** Range = **10.25** (Minutes), IQR = **1.97** (Minutes),  **1.65**(Minutes)

The best measure of spread is the range and interquartile range because the distribution is skewed.

**Outliers:** IQR Method: Adding 1.5 times the IQR to the third quartile value of **9.07** (Minutes) results in an upper outlier threshold of **12.02** (Minutes). Subtracting 1.5 times the IQR from the first quartile value of **7.1** (Min utes) results in a lower outlier threshold of **4.15** (Minutes). Examination of the data found 11 outliers that exceeded these thresholds, 12.5, 13, 13.2, 13.5, 14, 14, 14, 14, 15, 15, 15.

Standard Deviation () Method: Adding and subtracting three standard deviations from the mean of **8.27** (Minutes) establishes an upper outlier threshold of **13.23** (Minutes) and a lower threshold of **3.31** (Minutes). Examination of the data found 8 outliers that exceeded these thresholds, 13.5, 14, 14, 14, 14, 15, 15, 15.

The best measure of outliers is the IQR Method because the distribution is skewed.