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| **Main Ideas/Questions** | **Notes/Examples** |
| Box and Whisker Plot | A graphic format used to display the median, quartiles, and extremes of a data set on a number line that shows the distribution of the dataSee the source image |
| Five-Number Summary | **The values used to create the box and whisker plot:*** Minimum value: the smallest value in the data set
* Lower Quartile ($Q\_{1})$: median of the lower half of the data set
* Median: the value in the middle when the data is ordered from least to greatest
* Upper Quartile ($Q\_{3}$): median of the upper half of the data set
* Maximum Value: the largest value in the data set
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| Quartiles | * $Q\_{1} $- lower quartile is the left edge of the box
* $Q\_{3}$ – upper quartile is the right edge of the box
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| Interquartile Range | * upper quartile – lower quartile ***OR*** $Q\_{3}-Q\_{1}$
* $Q\_{1}$ to $Q\_{3}$ (box) represents 50% of the data set
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| Drawing Box and Whisker Plots | **1.** The resting heart rates, in beats per minute (bpm), of a group of people are given below. Find the five-number summary, draw the box and whisker plot, and then answer the questions that follow. |
| $$\left\{55, 72, 64, 58, 50, 62, 70, 84, 92, 76, 68, 60\right\}$$ | Minimum: \_\_\_\_\_\_Lower Quartile: \_\_\_\_\_\_Median: \_\_\_\_\_\_Upper Quartile: \_\_\_\_\_\_Maximum: \_\_\_\_\_\_ |
| **a)** What is the range? | **b)** What is the interquartile range? |
| **c)** What percent has a resting heart rate less than 66 bpm? | **d)** What percent have a resting heart rate of no more than 74 bpm? |
| **e)** What percent have a resting heart rate between 50 and 59 bpm? | **f)** What percent has a resting heart rate between 66 and 92 bpm? |

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| Drawing Box and Whisker Plots (continued) | **Directions:** Draw the box and whisker plot and give the five-number summary for each data set. |
| **2.** Number of games won by the Detroit Lions in their last 10 seasons:$$\left\{9, 7, 11, 7, 4, 10, 6, 2, 0, 7\right\}$$ | Minimum: \_\_\_\_\_\_Lower Quartile: \_\_\_\_\_\_Median: \_\_\_\_\_\_Upper Quartile: \_\_\_\_\_\_Maximum: \_\_\_\_\_\_ |
| **3.** The speed of 9 cars on the highway: $$\left\{62, 77, 80, 54, 65, 67, 58, 63, 70\right\}$$ | Minimum: \_\_\_\_\_\_Lower Quartile: \_\_\_\_\_\_Median: \_\_\_\_\_\_Upper Quartile: \_\_\_\_\_\_Maximum: \_\_\_\_\_\_ |
| **4.** The high temperature in the last 15 days: $$\left\{58, 67, 80, 72, 69, 59, 59, 75, 83, 84, 84, 76, 64, 64, 71\right\}$$ | Minimum: \_\_\_\_\_\_Lower Quartile: \_\_\_\_\_\_Median: \_\_\_\_\_\_Upper Quartile: \_\_\_\_\_\_Maximum: \_\_\_\_\_\_ |
| Analyzing Box and Whisker Plots | **5.** The box and whisker plot below shows the test scores for a group of 24 students. | **a)** What is the median score? |
| **b)** What percent of the students scored between 70 and 85? |
| **c)** How many students scored between 45 and 85? |
| **d)** If Kate got an 87, how did she do compared to the class? |

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| Analyzing Box and Whisker Plots (continued) | **6.** The fuel efficiency, in miles per gallon (mpg), of a group of cars is shown below. | **a)** What is the interquartile range? |
| **b)** What percent of the cars have a fuel efficiency greater than 20 mpg? |
| **c)** What percent of the cars have a fuel efficiency less than 26 mpg? |
| **7.** The battery life, in hours, of a group of 16 laptops is shown below. | **a)** Identify the lower and upper quartiles. |
| **b)** What percent of the laptops have a battery life of at least 6 hours? |
| **c)** How many laptops have a battery life less than 4.5 hours? |
| **8.** Fifty golfers are competing in a golf tournament. The scores in the first round are shown below. | **a)** Identify the minimum and the maximum values. |
| **b)** What percent of the golfers had a score greater than 70? |
| **c)** In order to advance to the next round, golfers cannot score above 72. How many are not moving on? |
| Comparing Box and Whisker Plots | **9.** Mr. Athens and Mrs. Gillman gave the same test to their math classes. The scores of each class are shown below. | **a)** What is the difference in the median score? |
| **b)** Which class has the greater range of scores? |
| **c)** Which class do you feel did better overall? Explain. |