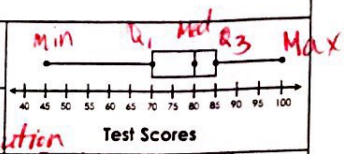
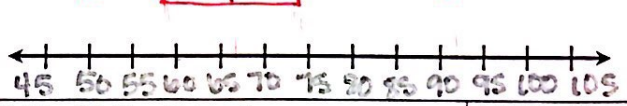
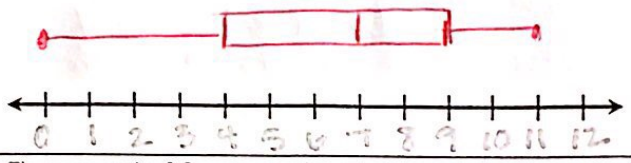
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
BOX-AND-WHISKER Plot	a graphic format used to display the median, quartiles, & extremes of a data set on a # line that shows the distribution of data 
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 data • Median: the value in the middle when data is ordered least to greatest • Upper Quartile: (Q_3) median of upper half of data • Maximum Value: the largest value in the data set
QUARTILES	Q_1 – Lower Quartile is left edge of box Q_3 – Upper Quartile is right edge of box
INTERQUARTILE RANGE	Upper quartile – lower quartile $Q_3 - Q_1$ Q_1 to Q_3 (box) represents 50% of data
Drawing BOX-AND-WHISKER Plots calc steps • data • L1 then, 2nd data opt 9 Fig: 1 data: ONE enter 3x	**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, then answer the questions that follow. **{55, 72, 64, 58, 50, 62, 70, 84, 92, 76, 68, 60}** 0% 25% 50% 75% 100% Min Q_1 Med Q_3 Max  Minimum: 50 Lower Quartile: 59 Median: 66 Upper Quartile: 74 Maximum: 92
	a) What is the range? 92 – 50 = 42 **b)** What is the interquartile range? $Q_3 - Q = 74 - 59 = 15$
	c) What percent have a resting heart less than 66 bpm? 50% **d)** What percent have a resting heart rate of no more than 74 bpm? 75%
	e) What percent have a resting heart rate between 50 and 59 bpm? 25 – 0 = 25% **f)** What percent have a resting heart rate between 66 and 92 bpm? 100 – 50 = 50%

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:

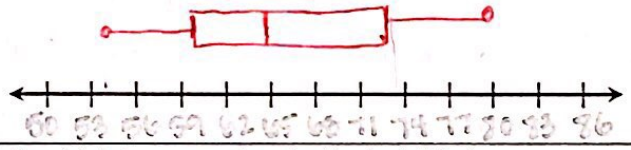
{9, 7, 11, 7, 4, 10, 6, 2, 0, 7}



Minimum: 0
Lower Quartile: 4
Median: 7
Upper Quartile: 9
Maximum: 11

3. The speed of 9 cars on the highway:

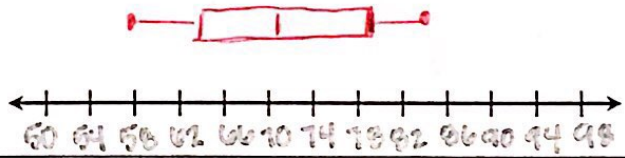
{62, 77, 80, 54, 65, 67, 58, 63, 70}



Minimum: 54
Lower Quartile: 60
Median: 65
Upper Quartile: 73.5
Maximum: 80

4. The high temperature in the last 15 days:

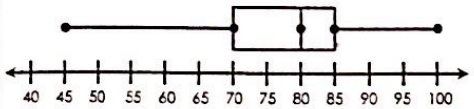
{58, 67, 80, 72, 69, 59, 59, 75, 83, 84, 84, 76, 64, 64, 71}



Minimum: 58
Lower Quartile: 64
Median: 71
Upper Quartile: 80
Maximum: 84

Analyzing BOX-AND-WHISKER Plots

5. The box-and-whisker plot below shows the test scores for a group of 24 students.



Test Scores

a) What is the median score?

80

b) What percent of the students scored between 70 and 85?

box represents 50%

c) How many students scored between 45 and 85?

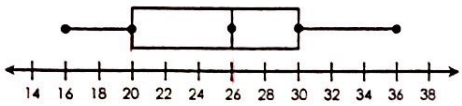
75% of 24 = 18 students

d) If Kate got an 87, how did she do compared to the class?

she was in the top 25%

she did better than 75% of class

6. The fuel efficiency, in miles per gallon, of a group of cars is shown below.



Fuel Efficiency

a) What is the interquartile range?

$Q_3 - Q_1$

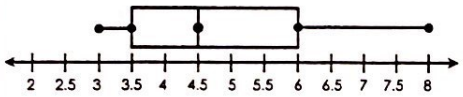
$30 - 20 = 10$

b) What percent of the cars have a fuel efficiency greater than 20 mpg? $100 - 25 =$ 75%

c) What percent of the cars have a fuel efficiency less than 26 mpg?

50%

7. The battery life, in hours, of a group of 16 laptops is shown below.



Battery Life

a) Identify the lower and upper quartiles. ↓3.5 ↓6

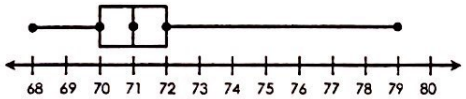
b) What percent of the laptops have a battery life of at least 6 hours?

$100 - 75 = 25\%$

c) How many laptops have a battery life less than 4.5 hours?

$50\% \times 16 = 8$ laptops

8. Fifty golfers are competing in a golf tournament. The scores in the first round are shown below.



Golf Scores

a) Identify the minimum and maximum values. ↓79 ↘68

b) What percent of the golfers had a score greater than 70?

$100 - 25 = 75\%$

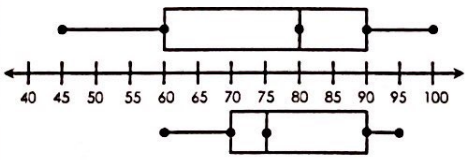
c) In order to advance to the next round, golfers can not score above 72. How many are not moving on?

$100 - 75 = 25\% \times 50 = 12$ golfers

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.

Mr. Athens' Class



Mrs. Gillman's Class

a) What is the difference in the median score? $80 - 75 = 5$

b) Which class had the greater range of scores? $100 - 45 = 55$ (Athens)

$95 - 60 = 35$

c) Which class do you feel did better overall? Explain.

Mrs. Gillman had a higher overall passing rate