

9B4A Just the "Average"

Name _____ Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

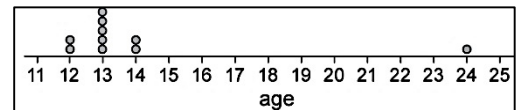
1. Complete the following table, computing each students' and each test **mean, median, mode** and **range**. If you don't remember how to find the following, check the back.

Name	Test 1	Test 2	Test 3	Test 4	Test 5	Mean for student	Median for student	Mode for student	Range for student
John	79	81	89	81	78				
Mary	63	83	89	82	86				
Jose	68	78	71	81	84				
Martha	88	70	82	64	85				
Jack	72	62	73	72	73				
Shawn	74	76	84	74	70				
Test Mean						XXX	XXX	XXX	XXX
Test Median						XXX	XXX	XXX	XXX
Test Mode						XXX	XXX	XXX	XXX

a. Which student scored the best overall? _____. Explain _____

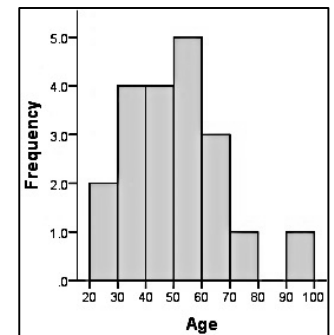
2. Use the **Dot Plot** to answer the questions you can about the data.

- a. What's the mean? _____
- b. What is the mode? _____
- c. What's the median? _____
- d. What is the Range? _____
- e. What's the minimum? _____
- f. What's the Maximum? _____
- g. Is there an outlier? _____
If so, what is it? _____



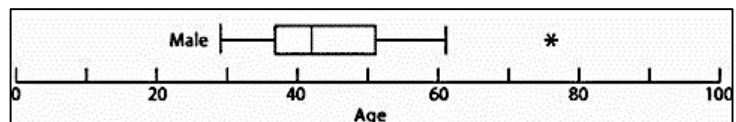
3. Use the **Histogram** to answer the questions you can about the data.

- a. What's the mean? _____
- b. What is the mode? _____
- c. What's the median? _____
- d. What is the Range? _____
- e. What's the minimum? _____
- f. What's the Maximum? _____
- g. Is there an outlier? _____
If so, what is it? _____



4. Use the **Box Plot** to answer the questions you can about the data represented.

- a. What's the mean? _____
- b. What is the mode? _____
- c. What's the median? _____
- d. What is the Range? _____
- e. What's the minimum? _____
- f. What's the Maximum? _____
- g. Is there an outlier? _____
If so, what is it? _____



Mean, Median, Mode & Range

Measure of Central Tendencies provide information about values of a data set. Mean, Median and Mode are the most commonly used measures of central tendency.

Example:

Find the mean, median, mode, and range of the following list of values: 14, 9, 18, 13, 6, 14, 10, 12, 20

- **The Mean** – “The Average”. There are 9 values in our set so we add them up and divide the sum by 9. $(14+9+18+13+6+14+10+12+20) \div 9 = 12.9$. So, the mean is 12.9.
- **The Median** – “The Middle”. First, we write our values in order from least to greatest to find the middle 6, 9, 10, 12, 13, 14, 14, 18, 20. The median is the value in the middle which is 13.
- **The Mode** – “Most Often”. Since there are TWO 14’s, all other values occur only once the mode is 14.
- **The Range** – The largest value in the set is 20 and the smallest is 6. Since $20 - 6 = 14$ the range is 14.

If you have a data set with an even amount of data, the method for finding the median is slightly different.

Example: Data set: 1, 2, 3, 4, 5, 6 *There is no middle number!
 So we look for the 2 numbers surrounding the middle (3 and 4) and we find the middle of those.
 To find the middle of 3 and 4, you are just finding the mean... so, $3 + 4 = 7$ and then $7 \div 2 = 3.5$
 So the median is 3.5

GRAPHICALLY REPRESENTING DATA!

There are several different kinds of graphs display data. Each has different strengths. Here are a few.

<p>Stem and Leaf</p> <p>A special table where each data value is split into a "stem" (the first digit) and a "leaf" (usually the last digit).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>stem</th> <th>leaf</th> </tr> </thead> <tbody> <tr><td>0</td><td>1, 2, 2, 2, 3, 4, 4, 4, 4, 5, 6</td></tr> <tr><td>1</td><td>0, 0, 0, 1, 1, 2, 2, 3</td></tr> <tr><td>2</td><td>3, 3, 7, 7, 4, 5, 5, 9</td></tr> <tr><td>3</td><td>0, 2, 1, 1, 2, 2, 4, 5</td></tr> <tr><td>4</td><td>0, 4, 8, 9</td></tr> <tr><td>5</td><td>2, 4, 7, 8</td></tr> <tr><td>6</td><td>3, 8</td></tr> </tbody> </table> <p style="text-align: center; font-size: small;">Key: 6 3 = 63 years old</p>	stem	leaf	0	1, 2, 2, 2, 3, 4, 4, 4, 4, 5, 6	1	0, 0, 0, 1, 1, 2, 2, 3	2	3, 3, 7, 7, 4, 5, 5, 9	3	0, 2, 1, 1, 2, 2, 4, 5	4	0, 4, 8, 9	5	2, 4, 7, 8	6	3, 8	<p>Pie Chart</p> <p>Uses "pie slices" to show relative sizes of data. Displayed by percentages.</p> <div style="text-align: center;"> <p>Frequency of coloured T-shirts</p> </div>
stem	leaf																
0	1, 2, 2, 2, 3, 4, 4, 4, 4, 5, 6																
1	0, 0, 0, 1, 1, 2, 2, 3																
2	3, 3, 7, 7, 4, 5, 5, 9																
3	0, 2, 1, 1, 2, 2, 4, 5																
4	0, 4, 8, 9																
5	2, 4, 7, 8																
6	3, 8																
<p>Bar Graphs</p> <p>Here is the same data, represented in a bar graph (one horizontally and one vertically)</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Nicest Fruit</p> </div> <div style="text-align: center;"> <p>Nicest Fruit</p> </div> </div>	<p>Box Plot (Box & Whisker)</p> <p>The data is divided into equal sections.</p> <div style="text-align: center;"> </div> <ul style="list-style-type: none"> • Median of the entire data set • Lower Quartile: Median of the lower half. • Upper Quartile: Median of the upper half. 																
<p>Histogram</p> <p>Data is grouped and plotted as bars. Similar to a Bar Graph, each bar is for a range of data.</p>	<p>Dot Plots</p> <p>Great for small data sets. The MODE is the easiest of the measure of central tendency to see.</p> <div style="text-align: center;"> <p>Dotplot of Random Values</p> </div>																