Notes 7-1
Measures of Central Tendency/
Box & Whisker Plots

Sec 1 H | Unit 7

Vocabulary

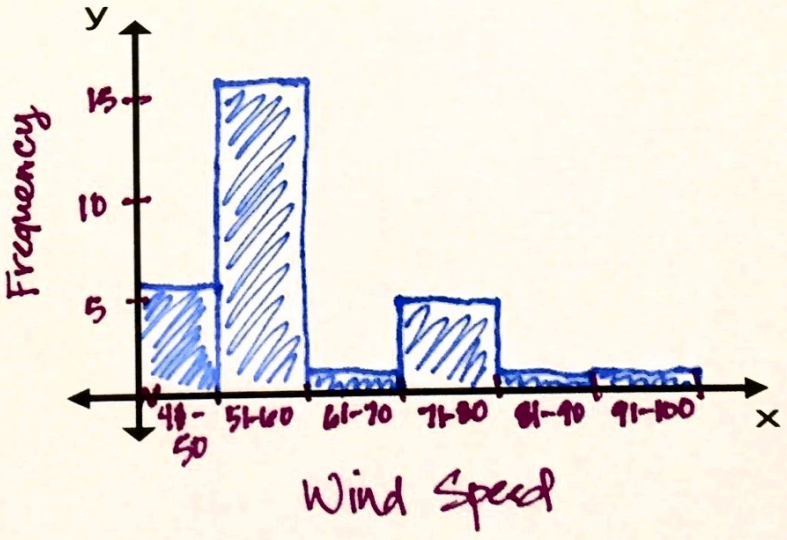
- **Frequency Chart:** use intervals to group data, use tallies to count data.
- **Interval:** Range of #s, equally spaced
  Interval of 10, 1-10, 11-20, 21-30
  0-9, 10-19, 20-29
- **Histogram:** graph of data that looks like a bar graph
  Always uses #s, intervals along x-axis, Frequency on y-axis
  Bars always touch

Organizing Data

Ex. 1: The following data shows the highest wind speeds in 30 US cities. Create a **frequency chart** and **histogram** of the test scores. Use intervals of 10.

Highest wind Speeds (mph)
~~52~~, ~~75~~, 60, 80, 55, 54, 91, 60, 81, 58
53, 73, 46, 76, 53, 46, 73, 46, 51, 49
57, 58, 56, 47, 65, 49, 56, 51, 54, 51

Frequency Chart		
Speed	Tally	Frequency
41-50	𝍸 I	6
51-60	𝍸 𝍸 𝍸 I	16
61-70	I	1
71-80	𝍸	5
81-90	I	1
91-100	I	1



Review Vocabulary

- Mean: "average" $\bar{x}$ Add all data points & divide by how many data points there are.
- Median: "Middle" put in order & find middle #
  1, 4, 7, 10, 11, 13 → 8.5
- Mode: "Most" the # that occurs most often
- Range: Maximum - Minimum = Range

Ex. 2: Find the **mean, median, mode,** and **range** for the data set.

16, 20, 30, 15, 23, 11, 15, 21, 30, 29

11, 15, 15, 16, 20, 21, 23, 29, 30, 30

Mean: 21
Median: 20.5
Mode: 15 & 30
Range: 19

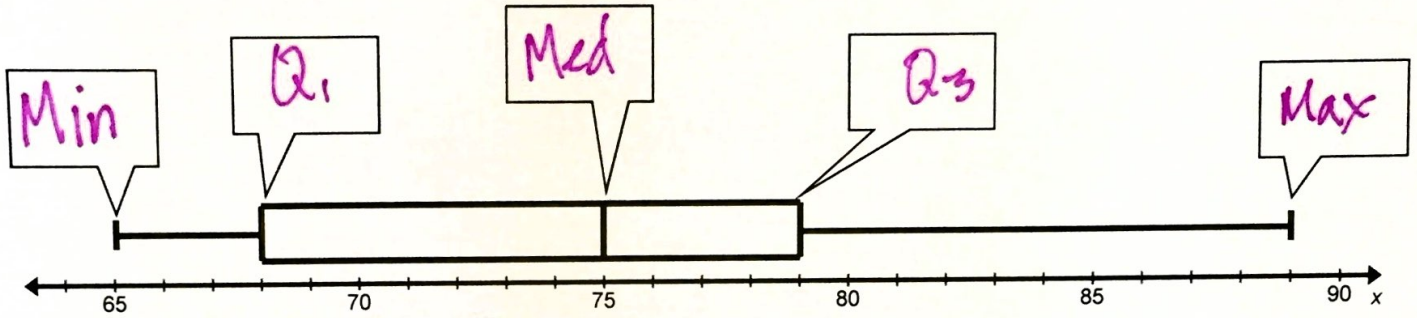
Ex. 3: Find the **mean, median, mode,** and **range** for the data set.

9, 12, 10, 3, 2, 3, 9, 11, 5, 25, 1, 10, 4, 2

Mean:
Median:
Mode:
Range:

Box-&-Whisker Plots

Uses five important numbers from a set of data to show the general trends of the data.



- **Median:** Middle #
- **1st Quartile (Lower Quartile):** Find the median of the 1st half of the data
  * Don't ever use the Median
- **3rd Quartile (Upper Quartile):** Find the median of the 2nd half of the data
  * Don't ever use the Median
- **Maximum:** Biggest #
- **Minimum:** Smallest #

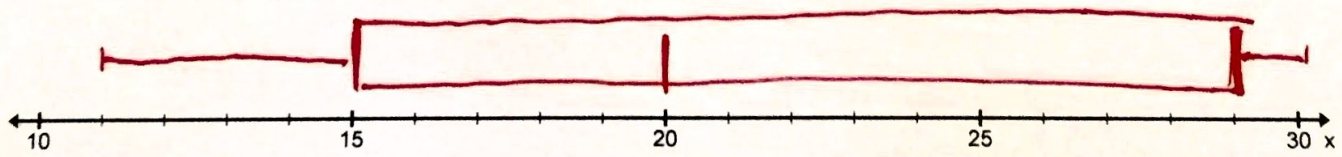
Ex. 4: Drawing a Box-and-Whisker Plot

A. Draw a box-and-whisker plot for the given data set.

16, 20, 30, 15, 23, 11, 15, 21, 30, 29, 12

11, 12, 15, 15, 16, 20, 21, 23, 29, 30, 30

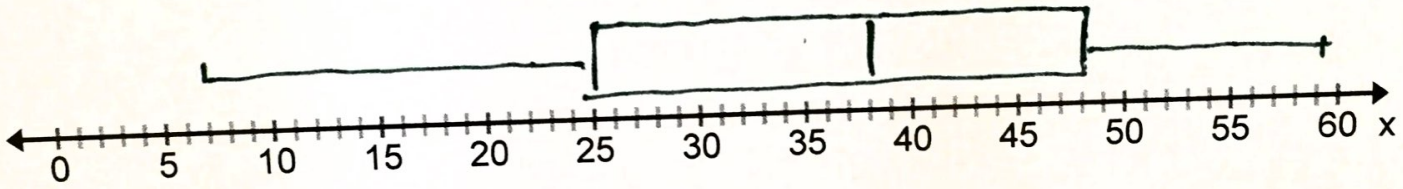
Q1 Med. Q3



- **Interquartile Range (IQR):** length of the box
  $Q_3 - Q_1$

Ex. 5: The following is a list of BYU's points scored in each of its games for the 2009 football season. Construct a box and whisker plot from the data.

14, 54, 28, 42, 35, 59, 38, 7, 52, 24, 38, 26, 44



Minimum: 7

1st Quartile (Q_1): 25

Median: 38

3rd Quartile (Q_3): 48

Maximum: 59

IQR: 23