

2.4 STATISTICAL GRAPHS

FREQUENCY POLYGON

- Plot the points with coordinates (**class midpoint, class frequency**)
- Connect points with line segments
- Extend the first and the last segments to the left and right so that **the graph begins and ends on the x-axis**

****Construct a frequency polygon with the following data.*

Pulse Rates of Women	Frequency	(class midpt,class freq.)
60 - 69	12	
70 - 79	14	
80 - 89	11	
90 - 99	1	
100 - 109	1	
110 - 119	0	
120 - 129	1	

OGIVE

- Plot the points with coordinates
(**upper class boundaries, cumulative frequency**)
- Connect points with line segments
- The graph **begins on the x-axis with the lower boundary of the first class and ends with the upper boundary of the last class**

****Construct an ogive with the following data.*

Pulse Rates of Women	Frequency	(upper class bound.,cumm. freq.)
60 - 69	12	
70 - 79	14	
80 - 89	11	
90 - 99	1	
100 - 109	1	
110 - 119	0	
120 - 129	1	

DOT PLOTS (see page 61)

- Each data value is plotted as a point (or dot) along a scale of values.
- Numbers appear individually not in categories as it happens in a histogram.
- Stack the values vertically when values occur more than once.
- Similar to histograms because we can see the distribution of the data
- We do not lose the particular values

******Construct a dot plot with the list of fuel consumption per car below.***

***MPG : 26 31 29 29 30 27 27 32 25 25 30 25 32 34 32 25
27 25 34 30 25 25 32 37 25 29 32 32 31 38 31 27***

PARETO CHARTS (see page 63)

- It is a bar graph for qualitative data
- Bars are arranged in descending size
- Vertical scale can represent frequencies or relative frequencies as in the histogram

****** Draw a pareto chart with the data from problem # 13, on page 68***

STEM AND LEAF PLOTS (see pages 61 & 62)

- Similar to histograms because we can see the distribution of the data
- We do not lose the particular values
- STEM (consists of the leftmost digit(s))
- LEAF (consists of the rightmost digit)
- Examine sideways and see a histogram
- The number of stems should be kept between 5 and 20
- If too many values, **expand**, subdividing rows into:
 digits from 0 to 4 and digits from 5 to 9
- If necessary, **condense**, that is reduce the number of rows
- Since it displays the data in order, it is a fast and easy procedure for ranking data (arranging data in order)

***** Construct a Stem-and-leaf plot with the following data set.
Condense or expand if you think it is necessary.**

7	9	12	11	3	6	0	18	12	21	32	42
28	30	9	15	25	10	17	33	37	5	24	16

PIE CHARTS (see page 63-64)

- Used to display qualitative data in a more understandable way
- Make a table with a column with relative frequencies (%), and a column for degrees (% of 360)

***** Fill in this table from problem # 30, on page 55**

Cause	Frequency	Relative freq.
Bad Track	23	
Faulty Equipment	9	
Human Error	12	
Other	6	

SCATTER DIAGRAMS

*******will be done later in chapter 10*******

Time-Series Graph (Pages 65)

- A graph of time-series data (data that has been collected at different points in time).
- Shows trends over time. (See SPSS graph, page 65)