14.5 part 2
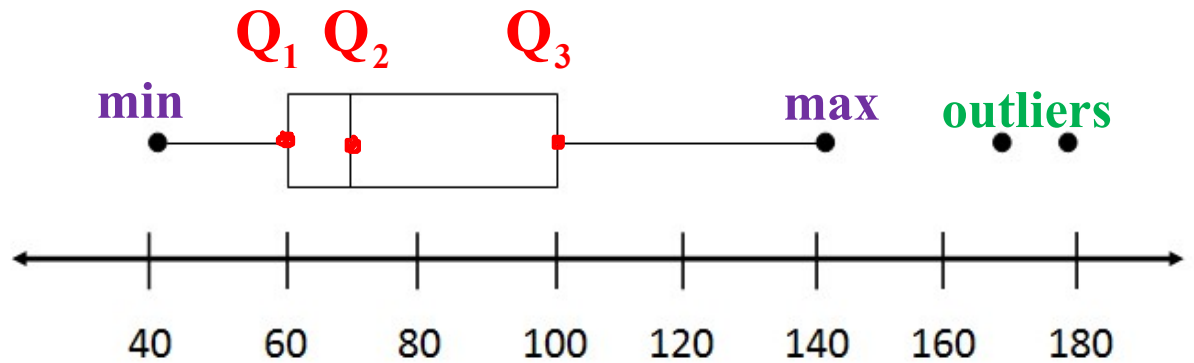**#17, 23, 24, 31, 36, 38, 40-42**

solve with calculator, sketch
diagrams when appropriate, okay to
write only the answer
if properly labeled

Notes 14-5

Box and Whisker Plots

Q_1, Q_2, Q_3: Points that break data into four quartiles.
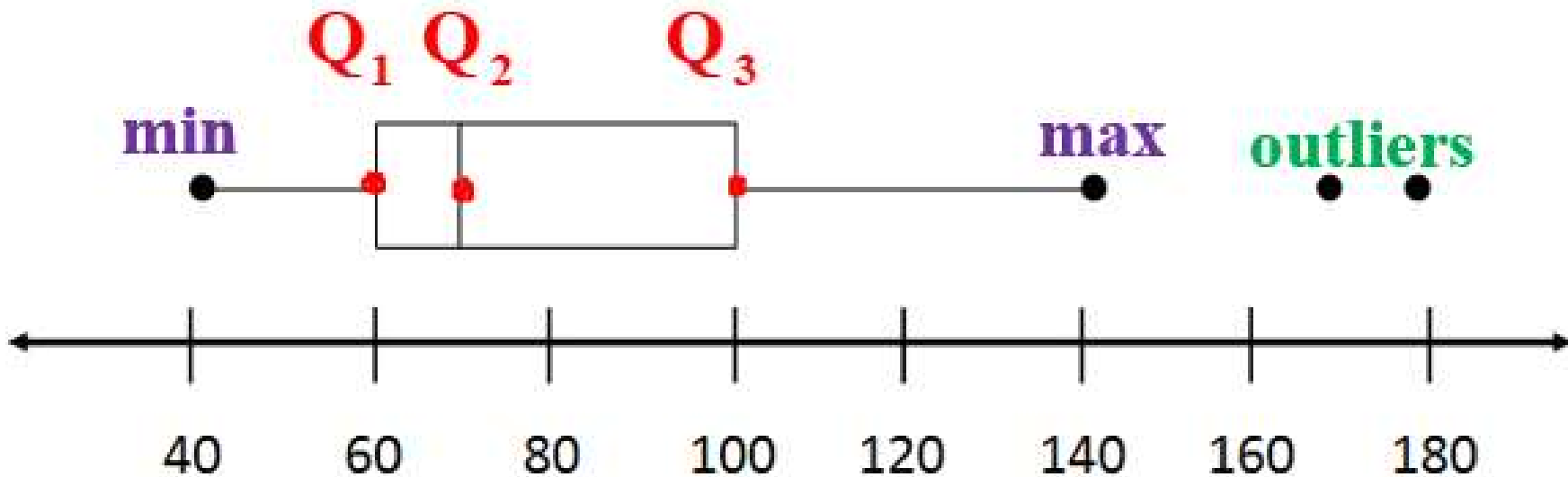
MEDIAN OF OVERALL DATA

Q_1: median of *lower* half of data

Q_2: median of the *entire* data set

Q_3: median of *upper* half of data

Minimum and Maximum values are the ends of the whiskers.

25% of the data can be found in each of the 4 regions created by the quartile points.

Five-number summary for a data set:

MIN, Q_1 MEDIAN, Q_3, MAX

option 1: 1-Var Stats

$\overline{X}$ = mean (average)

Σx = sum of all data values

Σx^2 = sum of the squared data values

Sx = sample standard deviation

σx = population standard deviation

n = total number of data values

min X = smallest data value

Q_1 = first quartile

Med = median of overall data set (2nd Quartile)

Q_3 = third quartile

max X = largest data value

STANDARD DEVIATION = σ

- A measure of spread that indicates the variability of data around a central value.

- Sigma (σ) can be found when calculating 1-Variable Stats

option 1: 1-Var Stats

$\overline{X}$ = mean (average)

Σx = sum of all data values

Σx^2 = sum of the squared data values

Sx = sample standard deviation

σx = population standard deviation

n = total number of data values

Data set #1:
40, 70, 100

Data set #2:
69, 70, 71

Mean = 70

Mean = 70

Median = 70

Median = 70

$\sigma = 24.49$

$\sigma = 0.81$

(more spread)

(less spread)

Same mean and median, but different variability.

Stem	Leaves
0	3 4
1	0 1 1 5
2	3
3	4 4
4	
5	5 6 6 6 9
6	2 3 7 7 8 8
7	4 5
8	2 3 3
9	1 4 5 5

most occurrences

1 | 2 = 12

14.5 #17

Stem and Leaf Plot

Count all "leaves"

a) What is the total number of data points? = 29

b) Find the median = 62 and the mode = 56

middle value
(14 scores less than 62 and
14 scores greater than 62)

14.5 #23 Box and Whisker Plot

Five-Number Summary and Box Plot A data set is given.
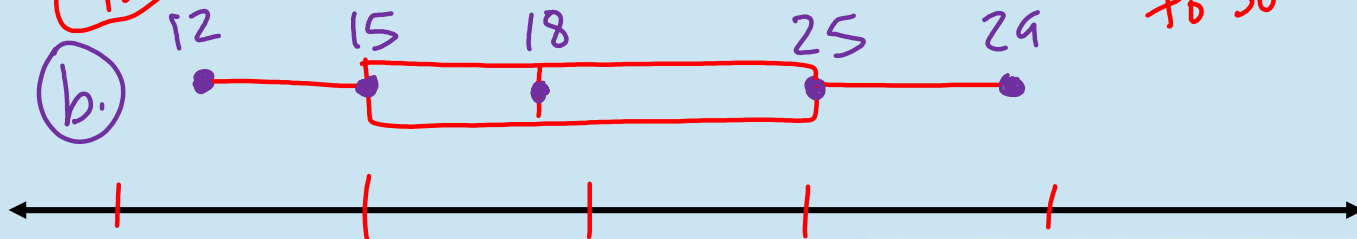
(a) Find the <u>five-number summary</u> for the data set.

(b) Draw a box plot for the data.

13	15	17	18	16
15	13	12	17	21
29	28	19	26	25
22	25			

close to 10

ⓐ
$$min = 12$$
$$Q_1 = 15$$
$$Med = 18$$
$$Q_2 = 25$$
$$max = 29$$

close to 30

label specific values

ⓑ

12   15   18   25   29

10   15   20   25   30

Set up # line

use "nice" values, usually multiples of 5 or 10 or 20. etc

**check EVEN answers for
14.5 part 2
#17,23,24,31,36,38,40-42**

#23,24→label all 5 points and use appropriate scale for given data

#36→use two lists to enter data

#38→ skip MEAN calculation

1   2   2.9   3   3.09   3.10   4.3

5.04   13   33.8   39.5   52   61

70   80.5   89   99   948   961.5

Hint for making a stem and leaf plot 14.5 #40:
First enter values into a **LIST** in your calculator, then **Sort.** Create a stem and leaf plot using this list that is now in order from smallest to largest.

NORMAL FLOAT AUTO REAL DEGREE MP

EDIT CALC TESTS
1:Edit…
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor

NORMAL FLOAT AUTO REAL DEGREE MP

EDIT CALC TESTS
1:Edit…
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor

NORMAL FLOAT AUTO REAL DEGREE MP

ClrAllLists
                                    Done
SortA(L₁)
                                    Done

NORMAL FLOAT AUTO REAL DEGREE MP

L2	L3	L4	L5	L6	2
21	------	------	------	------	
23					
23					
23					
24					
26					
30					
30					
32					
33					
33					

L2(1)=21

Key Press History

Hint: first enter values into a LIST in your calculator, then sort. Use this info to create stem & leaf plot.

Stem	Leaf
3.0	1 2 2 2 3 4 5 5 7 8 9 9 9 9
3.1	0 0 0 2 7 9
3.2	2 3 4 5 6
3.3	1 5 6
3.4	1 3

Hint: first enter values into a LIST in your calculator, then sort. Use this info to create stem & leaf plot.

3.0 | 1 mean 3.01

Calculator hints regarding data input:

to clear each list → if you are editing a list, just arrow up and highlight L_1, then push clear and <enter>

to clear ALL lists at once → 2nd Mem (above the + sign), then ClrAllLists

get started by entering data into a list →
push STAT button, then choose option 1:Edit
(push 2nd QUIT to close window when finished)

See instructions on gold reference sheet:

to calculate mean, median, STANDARD DEVIATION, etc→
push STAT ▶ CALC to calculate statistics for your data by choosing option 1: 1-Var Stats L_1.

Important: be sure to fill in the appropriate list name, otherwise L_1 will be chosen by default each time. Use down arrow to view **ALL** data in both screens.

NOTE: if using frequency table, enter 1: 1-Var Stats L_1, L_2

See instructions on gold reference sheet: