

Answer completely and show all of your work.

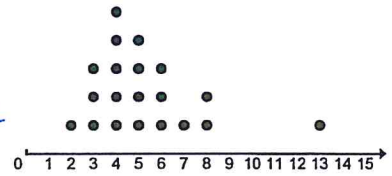
1. Consider the dot plot to the right.

a. What is the range for this set of data?

$13 - 2$
11 2 pt

b. What is the shape of this distribution?

Skewed right 1 pt



c. Which measure of center would be best to use in this situation? Why?

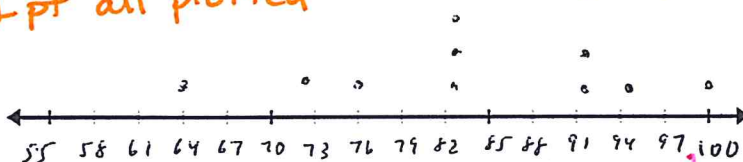
2 pt

Median because the one outlier would have minimal effect on this measure of center

2. The table to the right shows the distance from the mean data. The mean is 84. Plot the data on the chart and a dot plot.

Observation	Distance from Mean
100	16
95	11
92	8
92	8
83	1
83	1
83	1
76	8
72	12
64	20
Total =	86

Note: 1 pt scale & marked
1 pt all plotted



3. Find the mean absolute deviation (MAD) of the data.

5 pts total
3 pt
2 pt

$$\frac{86}{10} \approx 8.6$$

$$\approx 9$$

2 pts

4. Refer to the dot plot to the right. Find the following:

a. Q1

10

1 pt

b. Q3

13

1 pt

c. IQR

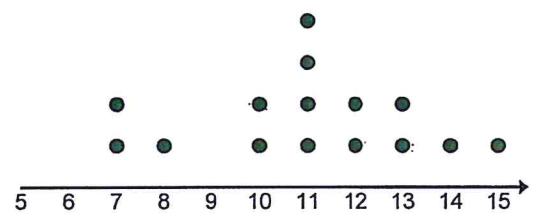
3

2 pts

d. MAD

11 = mean

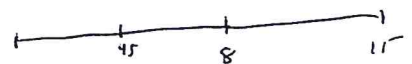
2 pts



8th = 11 = median

Q1 = 10

Q3 = 12.5



$$\frac{8+3+2+2+4+3+4}{15} = \frac{26}{15}$$

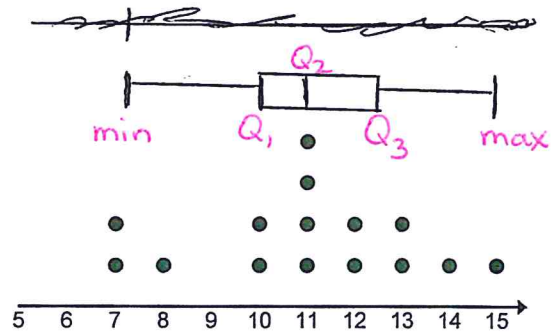
$$\frac{26}{15} \approx 1.73$$

~ 1.73

5. Draw a box plot above the dot plot below.

min = 7
max = 15
 $Q_1 = 10$
 $Q_2 / \text{Med} = 11$

4 pts



6. Below is the data of number of games each student has for Kyra's class. Create a frequency distribution and a histogram from the data.

10 ✓	15 ✓	22 ✓	5 ✓	17 ✓	23 ✓	12 ✓
15 ✓	30 ✓	0 ✓	10 ✓	28 ✓	20 ✓	44 ✓
12 ✓	14 ✓	24 ✓	32 ✓	3 ✓	18 ✓	22 ✓
11 ✓	7 ✓	15 ✓	28 ✓	33 ✓	16 ✓	17 ✓

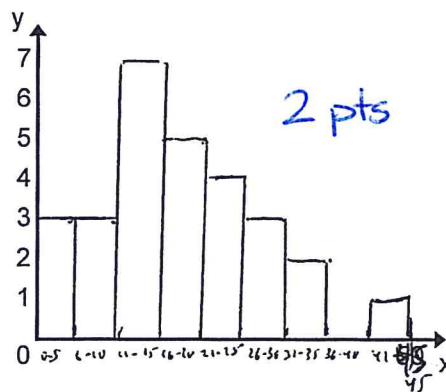
28

a. Frequency table (use increments of 5: 0-5, 6-10, 15-20, ...)

Data	Frequency
0-5	3
6-10	3
11-15	7
16-20	5
21-25	4
26-30	3
31-35	2
36-40	0
41-45	1

2 pts

b. Create the histogram from the data.



2 pts

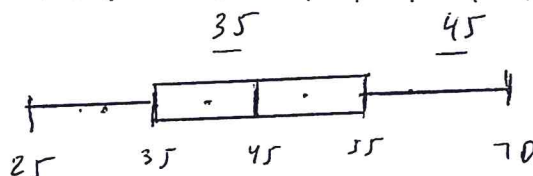
7. Create a box plot for the data below.

25	35	40	70	35	35	45	50
60	35	45	30	40	35	65	55

16

25, 30, 35, 35, 35, 40, 40, 45, 45, 50, 55, 55, 55, 60, 65, 70

4 pts



Key

1. a.) max-min

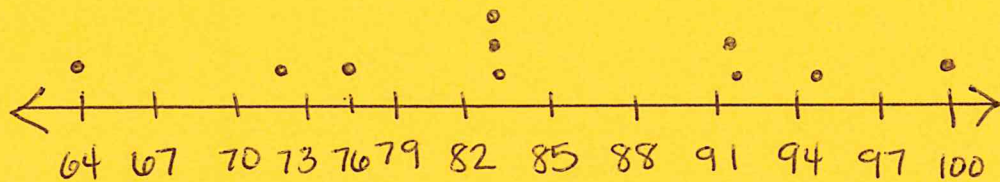
$$13 - 2 = 11 = \text{range}$$

b.) skewed right - see definition

c.) median - because outliers do not have as great an effect on the middle of the data. Means get changed by the outliers.

2.

Dot plot - one dot or "x" per data in observation column; scale should be by 3's or even 5's with dots in approx correct place.



Table

|absolute value|

$$100 - 84 = |16| = 16$$

$$95 - 84 = |11| = 11$$

$$92 - 84 = |8| = 8$$

$$92 - 84 = |8| = 8$$

$$83 - 84 = |-1| = 1$$

$$83 - 84 = |-1| = 1$$

$$83 - 84 = |-1| = 1$$

$$76 - 84 = |-8| = 8$$

$$72 - 84 = |-12| = 12$$

$$64 - 84 = |-20| = 20$$

Continue...

Total: 16
11
8
8
1
1

2. continued.)

$$\begin{array}{ccccccc}
 16 & + & 11 & + & 8 & + & 8 & + & 1 & + & 1 & + & 1 & + & 8 & + & 12 & + & 20 \\
 & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \downarrow \\
 27 & + & 16 & + & 3 & + & 20 & + & 20 \\
 & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \\
 43 & + & 23 & + & 20 \\
 & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \swarrow & & \searrow & & \\
 66 & + & 20 & = & \boxed{86}
 \end{array}$$

3.

$$\frac{86}{10} = \boxed{8.6}$$

or

$$\approx \boxed{9}$$

total from mean
number of data

4.



$$a.) Q_1 = \boxed{10}$$

$$b.) Q_3 = \boxed{13}$$

$$c.) IQR = Q_3 - Q_1$$

$$13 - 10 = \boxed{3}$$

d.)

- 1.) find mean
- 2.) subtract each data and mean
- 3.) total differences

4d.) MAD

$$\text{mean} = 7+7+8+10+10+11+11+11+11+12+12+13+13+14+15$$

$$\Downarrow$$

$$\frac{165}{15} = 11$$

* Always need the absolute value or positive answer

Data

$$\begin{array}{l} 11-7=4 \\ 11-7=4 \\ 11-8=3 \\ 11-10=1 \\ 11-10=1 \\ 11-11=0 \\ 11-11=0 \\ 11-11=0 \\ 11-11=0 \end{array} \left\{ \begin{array}{l} 12-11=1 \\ 12-11=1 \\ 13-11=2 \\ 13-11=2 \\ 14-11=3 \\ 15-11=4 \end{array} \right.$$

$$\text{total} = 4+4+3+1+1+1+1+2+2+3+4 = \frac{26}{15}$$

$$\text{MAD} = \boxed{1.73 \text{ or } \approx 1.7}$$

5.) use data from #4

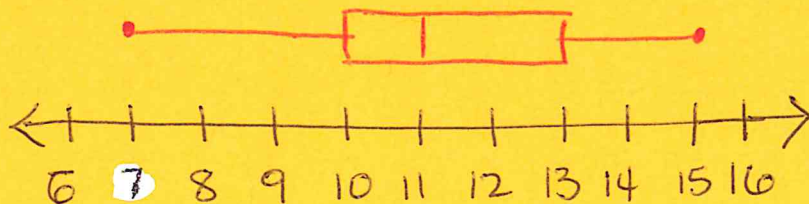
$$\text{Median} = Q_2 = 11$$

$$\text{min} = 7$$

$$Q_1 = 10$$

$$\text{max} = 15$$

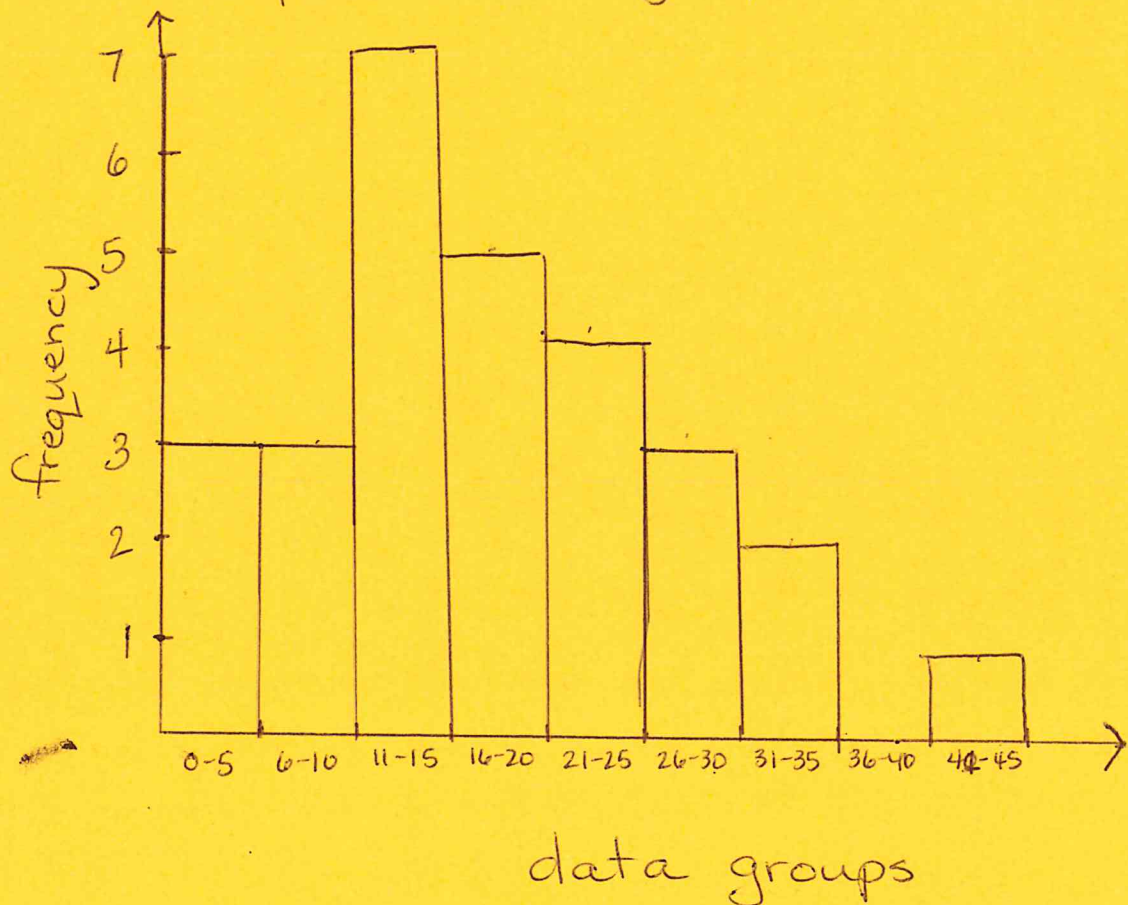
$$Q_3 = 13$$



b a.)

Data Column	Frequency = tally data in groups
0-5	= 3
6-10	= 3
11-15	= 7
16-20	= 5
21-25	= 4
26-30	= 3
31-35	= 2
36-40	0 = 0
41-45	= 1

b.) * keep bars touching
* complete histogram like bar graph



7.) order data least to greatest

$$Q_3 = \frac{55+55}{2} = \boxed{55}$$

25, 30, 35, 35, 35, 40, 40, 45, 45, 50, 55, 55, 55, 60, 65, 70

$$Q_1 = \frac{35+35}{2} = \boxed{35}$$

$$\text{median} = \frac{45+45}{2} = \boxed{45}$$

