Unit 1 Test Review Problems
Algebra 1

Name: KEY

1. The data set represents the number of hours that fifteen students walked during a two-week period.

			Q_1				med
6	6	7	8	8	8	9	10
10	12	13	14 (Q_3)	15	16	30	

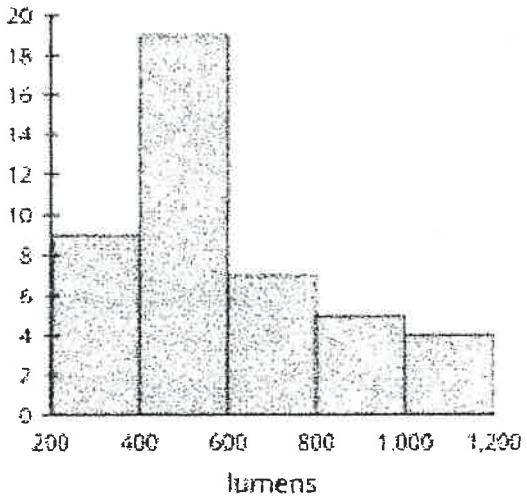
a) Find 5 number summary & create a box plot.

min: 6
Q_1: 8
med: 10
Q_3: 14
max: 30

b) Find any outliers. Show work!

$Q_1 - 1.5(IQR) = 8 - 1.5(6) = -1 \rightarrow$ no low outliers
$Q_3 + 1.5(IQR) = 14 + 1.5(6) = 23 \rightarrow$ one high outlier $\rightarrow$ 30

2a. Describe the shape of the distribution shown in the histogram which displays the light output, in lumens, of various light sources.



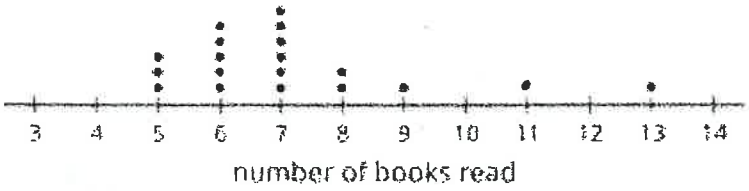
b) Make a frequency Table for the histogram:

200-400	9
400-600	19
600-800	7
800-1000	5
1000-1200	4

c) Describe the shape

skewed right

3 The dot plot displays the number of books read by students during the semester.



a Which measure of center would you use given the shape of the distribution in the dot plot? Explain your reasoning.

median → skewed right, so the mean is impacted, making mean not a good measure of center

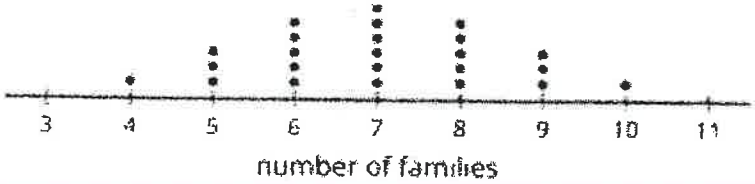
b Is mean less than, equal to, or greater than median. Why?

mean is greater than the median (>)

c Describe the shape.

skewed right

4 The dot plot displays the number of families living in different blocks of a town.



a Which measure of center would you use, given the shape of the distribution in the dot plot? Explain your reasoning.

mean → distribution is symmetric, so mean can/should be used

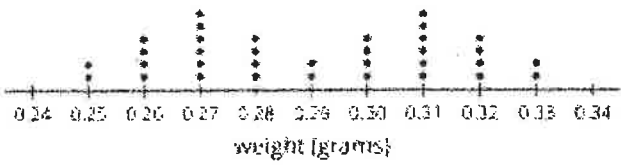
b Is mean less than, equal to, greater than the median? Why?

mean is equal to the median (=)

c Describe the shape.

bell-shaped and symmetric

5a. The dot plot shows the weight, in grams, of several different rocks. Describe the terms that describe the shape of the distribution.

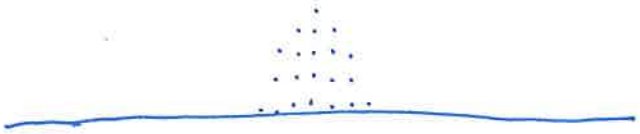


symmetric
bimodal

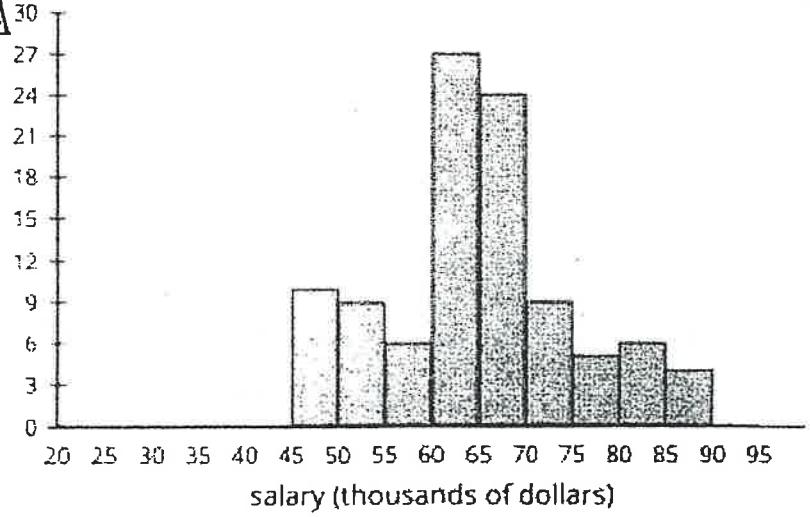
b. which measure of center would you use to describe this graph

mean

c. Draw a dot plot with less variability



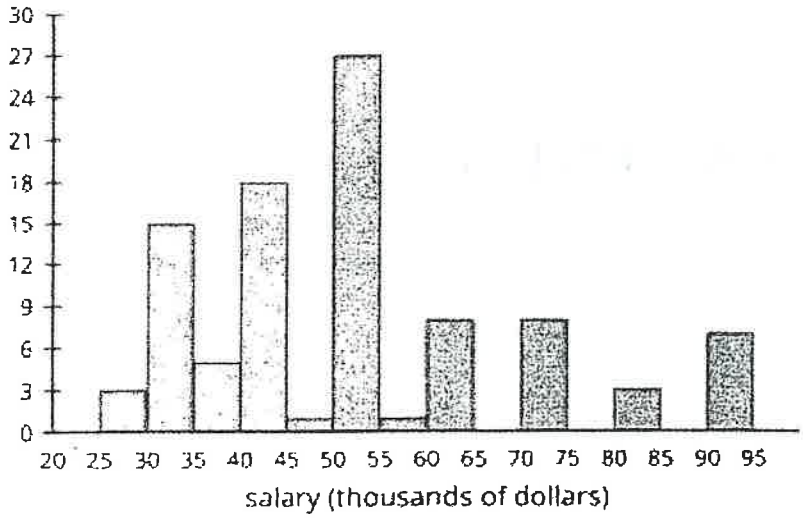
6.



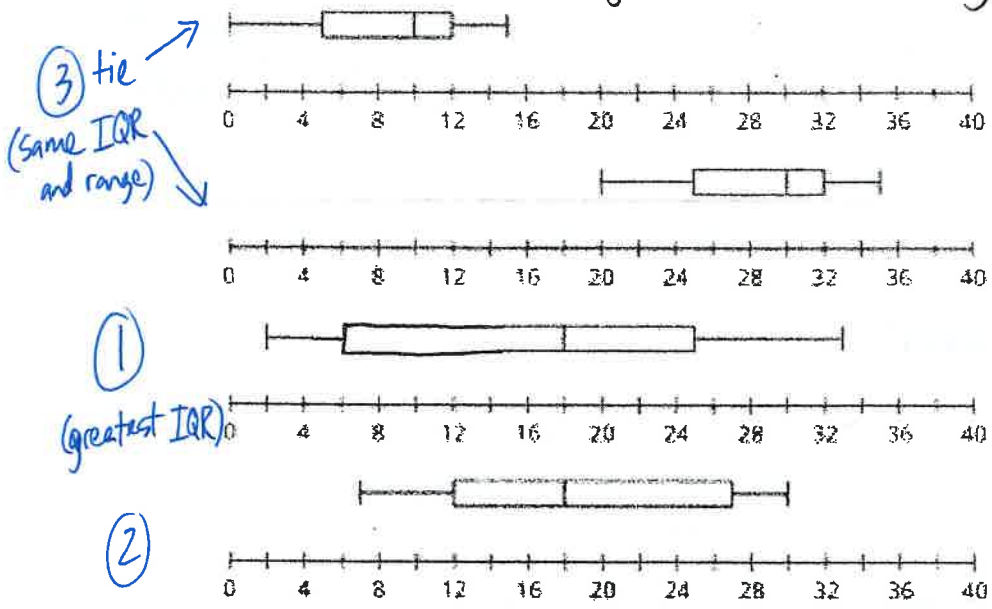
a. which graph has a higher standard deviation and why?

→ bottom graph has a higher SD

→ because it is more spread out (more variability in the data)



7. Number the box plots from greatest variability to least variability.



(3) tie (same IQR and range)

(1) (greatest IQR)

(2)

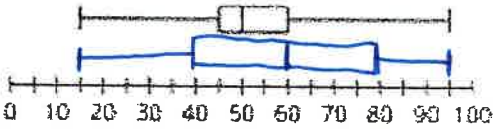
8. a. What is the five-number summary for (1) 3, (3) 3, 4, (6) 8, 9, (10) 10, (17)?

minimum = 1
Q_1 = 3
median = 6
Q_3 = 10
maximum = 17

b. Are there any outliers? Show work!

$Q_1 - 1.5(IQR) = 3 - 1.5(7) = -7.5 \rightarrow$ no low outliers
$Q_3 + 1.5(IQR) = 10 + 1.5(7) = 20.5 \rightarrow$ no high outliers

9. Here is a box plot.



Give an example of a box plot that has a greater median and a greater measure of variability, but the same minimum and maximum values.

See above