Today's Agenda

- Warm-Up   ** please put homework on your desk
- Review Homework
- Sections 1.7 - Analyzing Data
- Classwork / Homework

Section 1.7 - Analyzing Data
_____

Mean - the ___average___ of a set of numbers

Median - the ___middle number___ when the data values are placed in order
from ___least___ to ___greatest___

Mode - the number (or numbers) that occur ___most___ freqently

Minimum - The ___smallest___ number in a set of data.

Maximum - The ___greatest___ number in a set of data.

Range - The ___difference___ between the ___maximum___ and the
___minimum___.   → subtract

Lower Quartile - The ___median___ of the ___lower___ half of

data values when data is in order.

Upper Quartile - The ___median___ of the ___upper___ half of

data values when data is in order.

Interquartile Range - The ___distance___ between the ___lower quartile___
and the ___upper quartile___.

Ex: 8   7   6   7   6   4   7
       4   6   6   7   7   7   8

Mean: $\frac{45}{7}$ = 6.43   Median: 7   Mode: 7   Max: 8   Min: 4

Range: 8-4 = 4   LQ: 6   UQ: 7   IQR: 7-6 = 1

_____
                    6.5
       1   3   5   6   7   8   9   10

Ex: 5   8   3   1   10   9   7   6

Mean: $\frac{49}{8}$ = 6.13   Median: 6.5   Mode: none   Max: 10   Min: 1

Range: 10-1 = 9   LQ: 4   UQ: 8.5   IQR: 8.5-4 = 4.5

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Ex: ~~10~~ ~~12~~ ~~18~~ ~~20~~ ~~12~~ ~~18~~ ~~11~~ ~~12~~ ~~14~~ ~~18~~

10 11 (12) 12 12 | 14 18 (18) 18 20

Mean: Median: Mode: 12 + Max: 20 Min: 10
$\frac{145}{10}$ = (14.5) (13) 18

Range: 10 LQ: UQ: IQR: (6)
20-10 12 18 18-12

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Stem and Leaf Plot:
- A display where the data is organized by place value
- The "stem" is the left-hand column which contains the tens digits.
- The "leaves" are the lists in the right-hand column, showing all the ones digits.

Create a stem and leaf plot for the following list of grades on a recent test. Then find the mean, median, and mode.

4) ~~73, 42, 67, 78, 99, 100, 84, 91, 82, 86, 94, 100~~

```
4 | 2
5 |
6 | 7
7 | 3 8
8 | 2 4 6
9 | 1 4 9
10 | 0 0
```

Key: 8|4 = 84%

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Box and Whisker Plot:
- A graphical display of the maximum, minimum, lower quartile, upper quartile, and median.
- The "box" encloses the middle half of the data.
- The "whiskers" extend to the minimum and maximum values.
- The median divides the data set in half.

50%
25% 25% 25% 25%

| | 15 | 38 | 64 | 80 | 125 |
| | minimum | lower quartile | median | upper quartile | maximum |
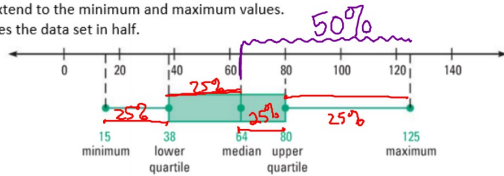
**Use the following box and whisker plot to answer the questions.**

50%

6   10   15   26 27
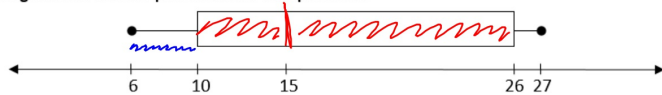
5) What is the median of the data?
15

6) What is the UQ? The LQ? The interquartile range?
26 - 10 = 16

7) What percent of the data lies between the lower quartile and the upper quartile?
50%

8) What percent of the data lies between the minimum and the lower quartile?
25%

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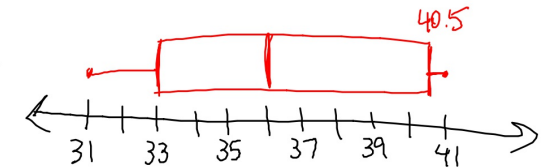**Create a box and whiskers plot for the following set of data:**

9) 21, 10, 20, 15, 17, 18

10 (15) 17 | 18 (20) 21
LQ 17.5 UQ
Med.

10 12 14 16 18 20 22
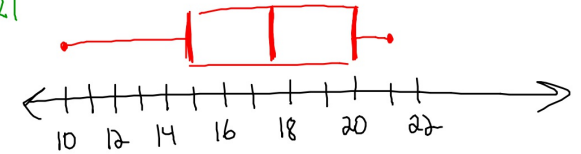
10) 31, 33, 33, 35, 36, 39, 40, 41, 41

40.5

LQ median UQ

31 33 35 37 39 41

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49. Multiple Choice What is the mean of 2, 2, 4, 5, and 6?

(A) 2   (B) 3.4   (C) 3.8   (D) 4

50. Multiple Choice What is the median of 1, 3, 4, 6, 11, and 11?

(F) 5   (G) 6   (H) 8.5   (J) 11

51. Multiple Choice What is the lower quartile of 5, 2, 1, 5, 3, 8, and 6?

(A) 1   (B) 2   (C) 3   (D) 4

52. Multiple Choice What is the upper quartile of 26, 14, 11, 22, 15, and 30?

(F) 22   (G) 26   (H) 28   (J) 30

11 14 15 22 26 30

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53. Multiple Choice For the data set 5, 3, 7, 5, 4, 1, which measure has a value of 5?

(A) mean   (B) median   (C) mode   (D) range

54. Multiple Choice What is the range of the data set represented by the box-and-whisker plot below?

(F) 20   (G) 23   (H) 31   (J) 34

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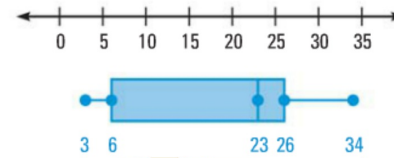
Travel Time In Exercises 43–46, use the following box-and-whisker plots representing the numbers of minutes that the students at two schools spend traveling to school.

A.   B.
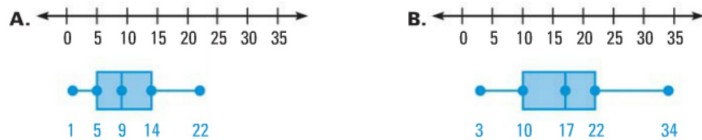
43. About half of the students at school A take fewer than how many minutes to get to school?

44. About three quarters of the students at school B take fewer than how many minutes to get to school?

45. At which school is the range of travel times greater?

46. What fraction of the students at school B take longer to get to school than any of the students at school A?

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In Exercises 3–9, use the following data set which gives the lengths of calls in minutes by a cellular telephone user.

Classwork/Homework: p.49: # 3-9, 24-28, 38, 42

1, 2, 2, 4, 5, 5, 8, 12, 15

3. Find the mean.   **4.** Find the median.

5. Find the mode(s).   **6.** Find the range.

7. Find the lower quartile.   **8.** Find the upper quartile.

9. Draw a box-and-whisker plot of the data set.

Car Prices In Exercises 24–28, use the following information.

At a car lot, you find six used cars that fit your needs. The prices of these cars are $9460, $10,400, $7500, $9720, $10,400, and $9800.

24. Find the range of the prices.

25. Find the mean, median, and mode(s) of the prices.

26. You are also interested in a new car on the lot. The sticker price is $20,250. Find the mean, median, and mode(s) of the prices of the seven cars.

27. Describe how the price of the seventh car changes the mean. Describe how this price changes the median.