

5/4/17 CCM6 and CCM6+

Find measures of center and measures of spread. Explain what they tell you about data.

1. Agenda...HW is pages 44-46 and EOG EE

and QUIZ MONDAY

2. Get out p.38 and 40 to check.

Do **Thurs warm-ups** *with calculator*.

Warm-ups

$$\textcircled{1} \begin{array}{r} 12 \times 4 \times 5 = 240 \\ 11 \times 5 \times 6 = 330 \\ \hline 570 \end{array}$$

$$\textcircled{2} \begin{array}{r} 3(2 \times 7 \times 3) \\ 3(42) = 126 \end{array}$$

Mean Absolute Deviation Homework

Find the mean absolute deviation for each set of data.

* mean round to tenths

1. ~~80, 82, 88, 90, 94, 102, 104, 106~~

MEAN: $\frac{560}{6} = 93.3$ MAD: $\frac{40}{6} = 6.7$

DATA	DIFFERENCE Data minus Mean	ABSOLUTE VALUE
82	82 - 93.3	11.3
88	88 - 93.3	5.3
90	90 - 93.3	3.3
94	94 - 93.3	0.7
102	102 - 93.3	8.7
104	104 - 93.3	10.7

5. ~~160, 166, 170, 172, 178, 180, 190, 204, 260~~

MEAN: MAD:

DATA	DIFFERENCE Data minus Mean	ABSOLUTE VALUE

~~What is a mean? _____~~

~~What is the mean for this set of data? _____~~

~~What is mean absolute deviation?~~

~~the _____ of each data value from the _____~~

~~What is the MAD for this data set? Make a chart and figure it out! MAD = _____~~

✓ HW # 1-4 @ bottom

Variability

To find a RANGE you need which two "MAGIC NUMBERS?"

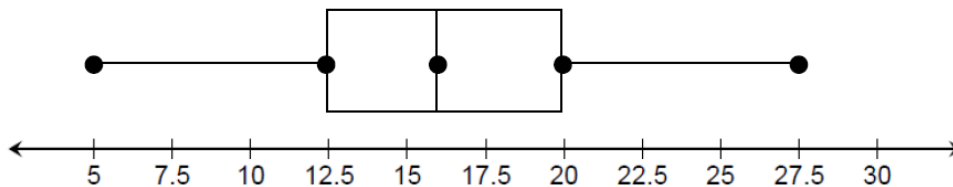
max — min

To find the InterQuartile Range (IQR), you need which two "MAGIC NUMBERS?"

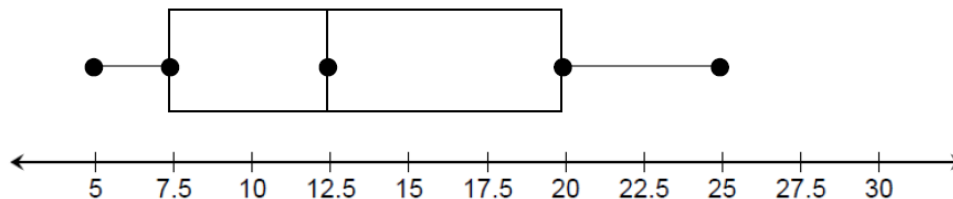
Q3 — Q1

Use the data displayed in the box plots below to answer the questions.

Amount Spent by Each Customer (in dollars) at Casual Café



Amount Spent by Each Customer (in dollars) at Bountiful Bistro



1) Find the following for each set of data.

- a. median 16 12.5
- b. range 22.5 20
- c. interquartile range 7.5 12.5

2) Use the medians of the data to compare the amounts spent by customers at each restaurant.

People spend more \$ at CC

3) Use the ranges and interquartile ranges of the data to compare how amounts spent by customers at each restaurant vary. Which restaurant would you rather eat at based on this data? Explain.

I'd eat at ...

4) Is there symmetry or lack of symmetry in each box plot?

CC is nearly symmetrical around median

BB is skewed left { 40 }

Review...

Set of data: 2, 4, 7, 10, 9, 8, 3, 5

Find mean, median, mode, range.

Find 5 numbers for a box-plot.

Would this have a high or low MAD?

Describe the spread of the data.

Review...

Set of data: 2, 4, 7, 10, 9, 8, 3, 5

2, 3, 4, 5, 6, 7, 8, 9, 10

Find mean, median, mode, range.

$\frac{48}{8} = 6$ 6 none $10 - 2 = 8$

Find 5 numbers for a box-plot.

2 3.5 6 8.5 10

Would this have a high or low MAD?

Describe the spread of the data.



Review...

Set of data: 2, 4, 7, 10, 9, 8, 3, 5

2, 3³.5, 4, 5⁶, 7, 8^{8.5}, 9, 10

Find mean, median, mode, range.

$\frac{48}{8} = 6$ 6 none 8

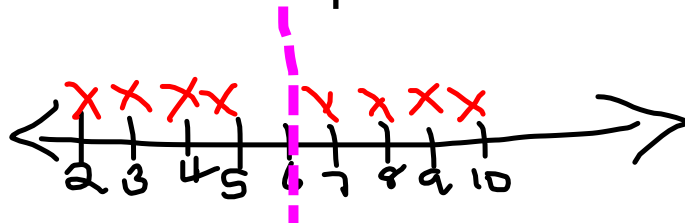
Find 5 numbers for a box-plot.

2, 3.5, 6, 8.5, 10

Would this have a high or low MAD?

small range

Describe the spread of the data.



CW/HW

Measures of Variability: MAD and IQR

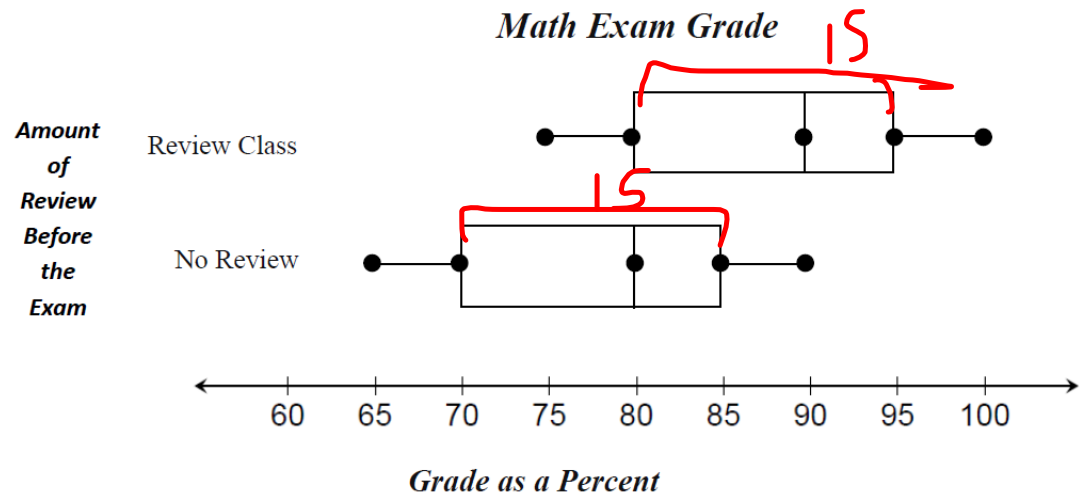
Variability means how different (apart) are data

Why is MAD a measure of variability?

how far apart from the mean

Why is IQR a measure of variability?

how far apart from the median



1) What conclusions can you draw from looking at the plot about how effective the math exam review class was?

Review did much better

2) What is the difference in the medians between the sets of data?

$$90 - 80 = 10$$

3) The mean absolute deviation for both groups of students is 6.2. Compare that value to the difference in medians. What does that tell you about the data?

spread out the same

4) What is the interquartile range for each set of data? What does that tell you about the data?

Spread same

CHALLENGE: Determine which 2 sets of data will overlap more.

Set A has a mean of 12 and a mean absolute deviation of 5.1

Set B has a mean of 23 and a mean absolute deviation of 4.9

Set C has a mean of 10 and a mean absolute deviation of 4.8

Handwritten calculations:
 5 + 7 = 12
 5 + 18 = 23
 5 + 5 = 10
 A + C

~~Day 9 HW (MAD and IQR - Measures of Variability)~~

CW/#W #5+7

Find the mean absolute deviation for each set of data. Round to the nearest hundredth if necessary. Then describe what the mean absolute deviation represents.

4. Number of Daily Visitors to a Web Site
112 145 108 160 122

Mean = _____

Data Values	Difference from Mean	Absolute value

MAD = _____

5. Zoo Admission Prices (\$) 5.
9.50 9.00 8.25 9.25 8.00 8.50

Mean = _____

Data Values	Difference from Mean	Absolute Value

MAD = _____

6.

The table shows the prices for parking at various beaches along the same coastline.

Beach Parking (\$)
2.50 3.75 1.25 2.25 3.00

Which of the following is the mean absolute deviation for the set of data?

- A. \$0.25
- B. \$0.66
- C. \$2.50
- D. \$2.55

7.

Which of the following is true concerning the mean absolute deviation of a set of data?

- F. It describes the variation of the data values around the median.
- G. It describes the absolute value of the mean.
- H. It describes the average distance between each data value and the mean.
- I. It describes the variation of the data values around the mode.