

Hours Spent Playing Video Games

Mrs. Smith's Class

2, 3, 4, 5.5, 6, 6.5, 7.5, 7.5, 7.5, 8

Range
 $8 - 2 = 6$

LO

Q1
Lower quartile
LQ

6
median
Q2

Q3

Upper quartile
UQ

Hi

Can't learn

Range
IQR
Median (Q2)

middle 50%

IQR = 3.5

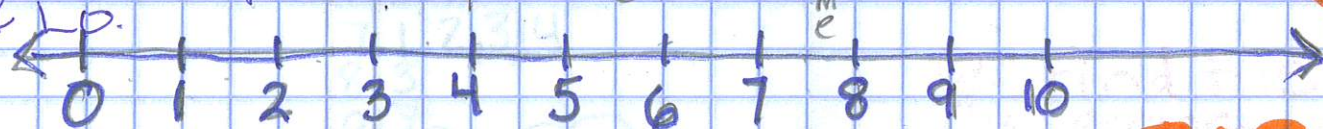
IQR: $Q_3 - Q_1$

$Q_3 - Q_1 = \text{IQR}$
 $7.5 - 4 =$

3.5
hrs

Can't learn

of data points
using data except
min & max



Range
 $10 - 4 = 6$

IQR $Q_3 - Q_1$

$Q_3 - Q_1 = \text{IQR}$
 $8.75 - 6.25 =$

2.5
hrs

Mrs. G's Class

4, 5, 6, 6.5, 6.5, 7, 8, 8.5, 8.5, 9, 9.5, 10

LO

Q1
LQ

Q2

Q3
UQ

Hi

7.5 median

8.75

Compare Measures of Center (mean, Median) & Measures of Variation (Range, IQR)

MAD

The median is higher for Ms. G's class.

The IQR is smaller for Ms. G's class
data points are closer together

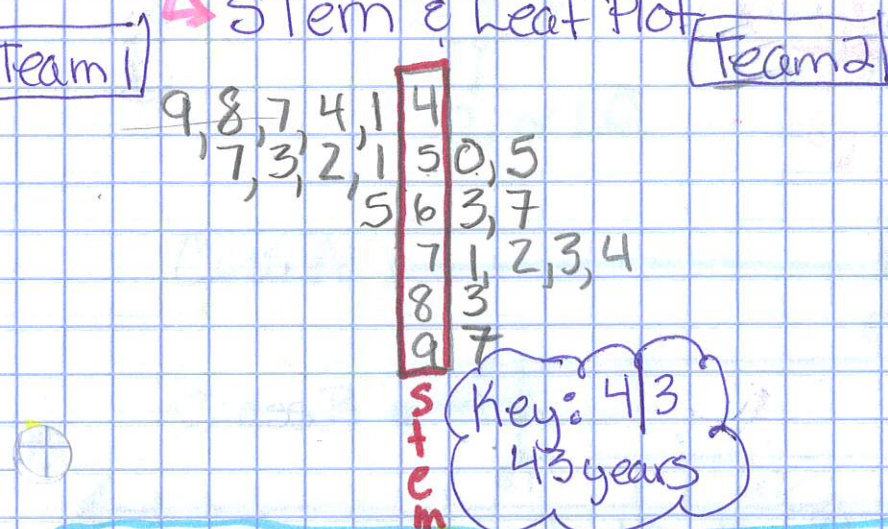
The Range is the same for both.

Mean Absolute Deviation (MAD)

* measure of the average distance of each data point from the overall average.

* Age of Boomers on 2 BB Teams

↳ Stem & Leaf Plot



Finding the MAD

- ① Find the average of all the data.
- ② Find the difference of each data point from the average.
- ③ Find the mean of the differences

Team 1			Team 2		
41	51-41	10	50	71-50	21
44	51-44	7	53	71-53	17
47	51-47	4	63	71-63	8
48	51-48	3	67	71-67	4
49	51-49	2	71	71-71	0
51	51-51	0	72	72-71	1
52	52-51	1	73	73-71	2
53	53-51	2	74	74-71	3
57	57-51	6	83	83-71	12
65	65-51	14	97	97-71	26

$\frac{507}{10}$
mean = 50.7
~ 51

4.9
MAD

$\frac{705}{10}$
mean = 70.5
~ 71

9.3
MAD

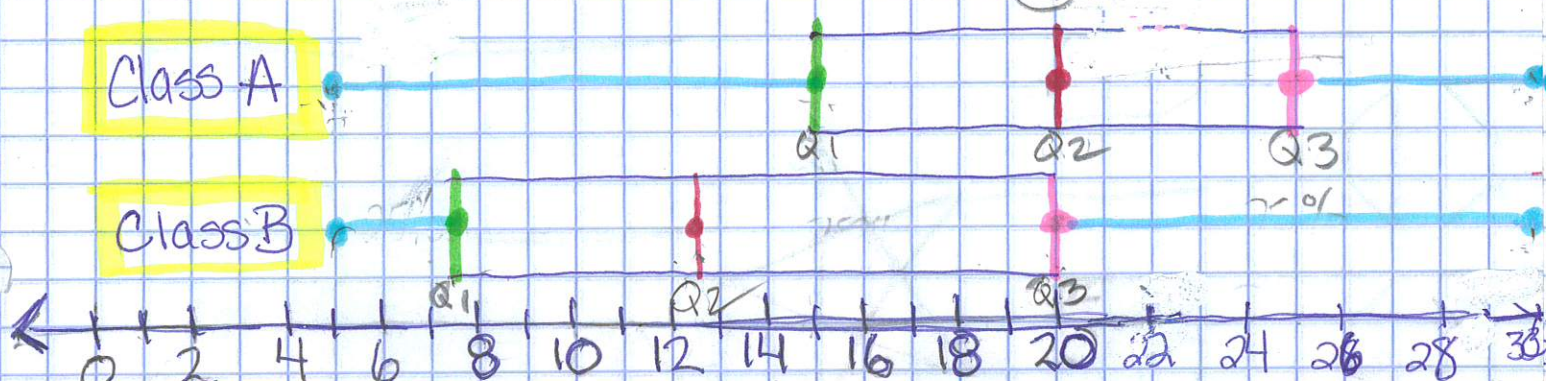
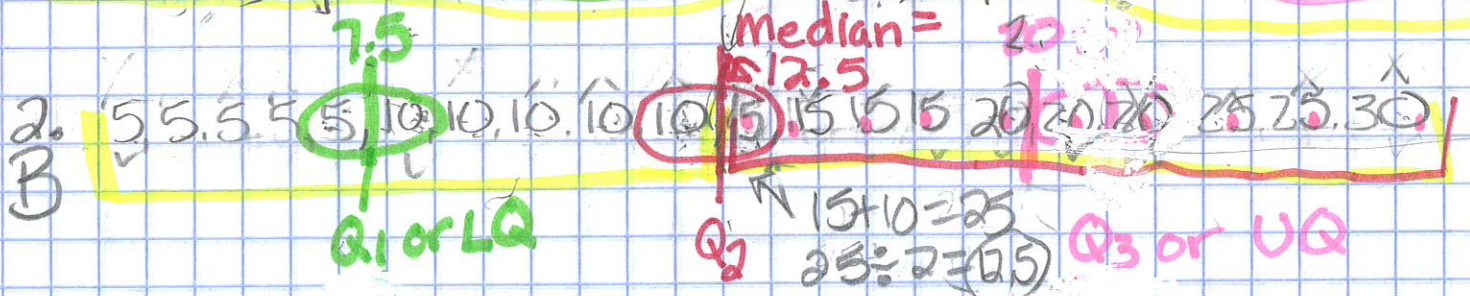
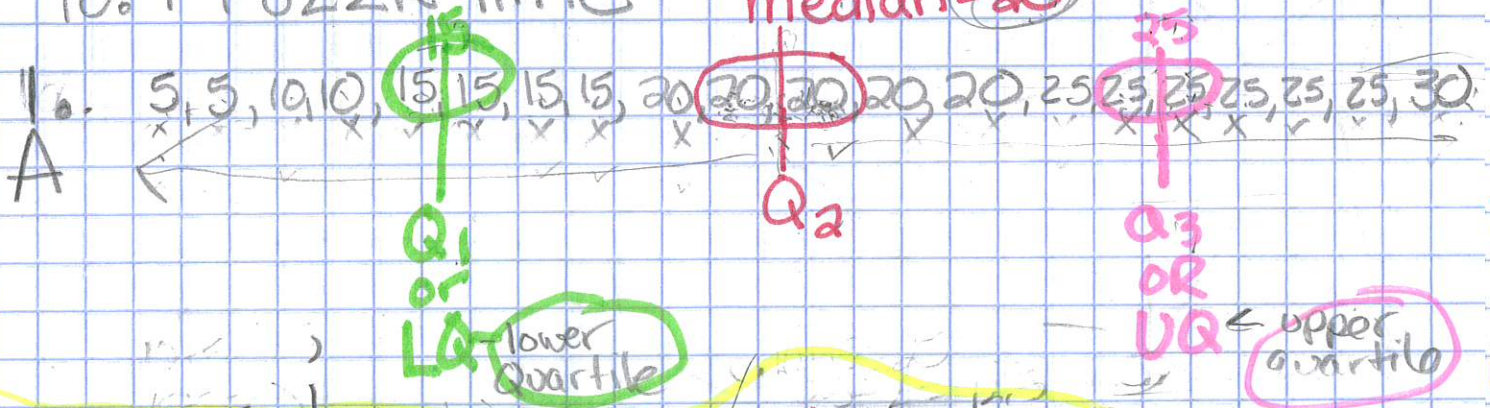
$9.3 \div 4.9 = 1.89 \approx 1.9$

Comparing the MADs

Team 2 has a larger MAD. Team 2's MAD is 1.9 times larger than Team 1. This means that the ages of players on team 2 vary almost twice as much from their team's average age as do the ages of players on team 1.

10.7 Puzzle Time

Even # of Data Points, N° middle
Median = 20



3. **IQR for Class A:**
A $Q_3 - Q_1 = IQR$
 $25 - 15 = 10$

4. $Q_3 - Q_1 = IQR$
B $20 - 7.5 = 12.5$

6. **A** Total of all Data: $\frac{128}{16} = 8$
Mean = 8 Books

7. **B** $\frac{176}{16} = 11$
Mean = 11 books

8. **A**

8-8	0	8-8	0
8-8	0	10-8	2
8-6	2	10-8	2
14-8	6	8-4	4
8-6	2	8-4	4
12-8	4	8-6	2
8-2	6	12-8	4

Total Difference = 40
 Total Data Points = 16
MAD = 2.5

9. **B**

12-11	1	14-11	3
12-11	1	13-11	2
12-11	1	11-9	2
12-11	1	14-11	3
12-11	1	11-9	2
12-11	1	11-9	2
11-7	4	13-11	2

$\frac{32}{16} = 2$
MAD = 2