MTH1W – Unit 9: Statistics

Name: Mr. Hagen

Homework #9.3: Measure of Spread: Box and Whisker Plot

Date: ______________________

For each question, calculate:

1. Median
2. First Quartile (or lower quartile)
3. Third Quartile (or upper quartile)
4. Interquartile Range (IQR)
5. Lower threshold for outliers
6. Upper threshold for outliers

Then draw the box and whisker plot. **Be organized and neat in your work.**

1. Annual Precipitation (Inches)

30.4	31.2	61.8	12.4	21.4
60.4	7.2	55.6	64.8	21
49.8	42.2	10.2	45.8	60.4
12.6	51.8			

17 numbers.

Q1

Sort: 7.2, 10.2, 12.4, 12.6, 21, 21.4, 30.4, 31.2, $\boxed{42.2}$ 45.8, 49.8, 51.8, 55.6, 60.4, 60.4, 61.8, 64.8

Q3

1. Median: $\frac{17}{2} = 8.5 \Rightarrow 9^{th}$ #

→ 42.2

2. $Q1 = \frac{12.6 + 21}{2} = \frac{33.6}{2} = 16.8$

3. $Q3 = \frac{55.6 + 60.4}{2} = 58$

4. $IQR = 58 - 16.8 = 41.2$

5. Lower: $Q1 - 1.5 \times IQR$

$= 16.8 - 1.5(41.2)$

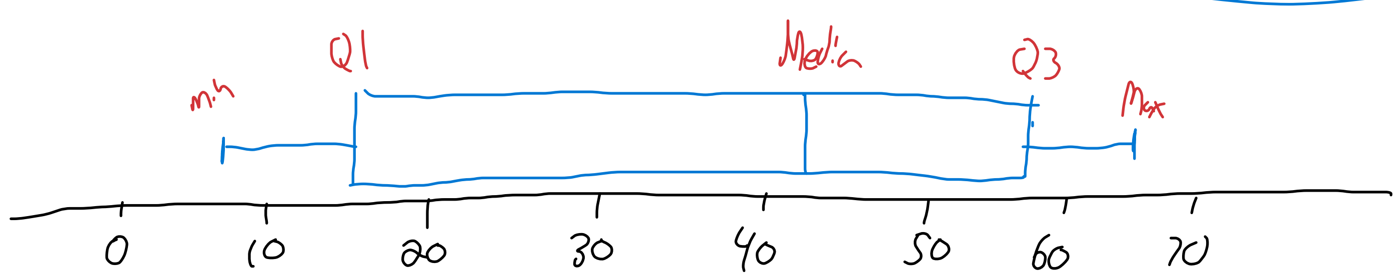
$= 16.8 - 61.8$

$= -45$

6. Upper: $58 + 61.8$

$= 119.8$

no outliers.



2. Car Masses (kg)

1,870	1,590	1,090	1,550	1,380
1,495	1,725	1,680	1,895	845
1,540	1,435	1,785	1,780	1,275
1,725				

16 numbers

Q1 | Median | Q3

Sort: 845, 1090, 1275, 1380, | 1435, 1495, 1540, 1550, | 1590, 1680, 1725, 1725, | 1780, 1785, 1870, 1895

(1) Median: $\frac{16}{2} = 8$ $\therefore$ middle of 8th and 9th

$= \frac{1550+1590}{2} = 1570$

(2) $Q1 = \frac{1380+1435}{2} = 1407.5$

(3) $Q3 = \frac{1725+1780}{2} = 1752.5$

(4) $IQR = 1752.5 - 1407.5 = 345$

(5) Lower: $Q1 - 1.5 \times IQR$

$= 1407.5 - 1.5(345)$

$= 1407.5 - \underline{517.5}$

$= 890$

(6) Upper: $Q3 + 1.5 \times IQR$

$= 1752.5 + 517.5$

$= 2270$

$\therefore$ 845 is an outlier.