

For each of the problems below,

- a) Identify the 5-number summary
- b) Use the IQR rule of outliers to determine if there is an outlier in the data
- c) Plot a box plot on the number-line. Don't forget to add scale!

1) {2, 13, 14, 14, 16, 17, 18, 20}

Five Number Summary: Min 2, Q1 13.5, Median 15, Q3 17.5, Max 20

Calculation for Outlier: $13.5 - 1.5(4) \leq x \leq 17.5 + 1.5(4)$

IQR = 4
 $7.5 \leq x \leq 23.5$

Is there an outlier? Yes, 2 is an outlier



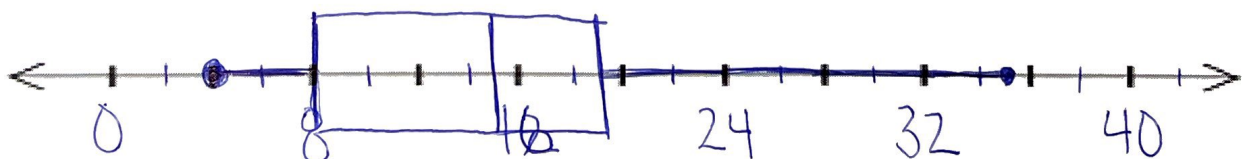
2) {4, 7, 9, 12, 15, 15, 18, 20, 35}

Five Number Summary: Min 4, Q1 8, Median 15, Q3 19, Max 35

Calculation for Outlier: $8 - 1.5(11) \leq x \leq 19 + 1.5(11)$

IQR = 11
 $-8.5 \leq x \leq 35.5$

Is there an outlier? No, there is not an outlier.

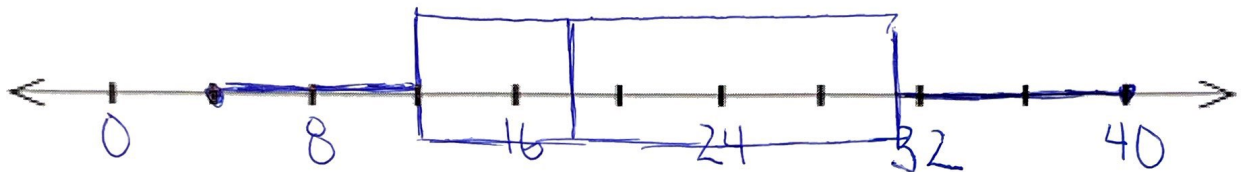


3) {4, 9, 15, 15 | 21, 30, 32, 40}

Five Number Summary: Min 4, Q1 12, Median 18, Q3 31, Max 40

Calculation for Outlier:
 $12 - 1.5(19) \leq x \leq 31 + 1.5(19)$
 $-16.5 \leq x \leq 59.5$

Is there an outlier? NO, there is not an outlier.



4) {1, 15, 16, 16, 18 | 20, 20, 21, 22, 40}

Five Number Summary: Min 1, Q1 16, Median 19, Q3 21, Max 40

Calculation for Outlier:
 $16 - 1.5(5) \leq x \leq 21 + 1.5(5)$
 $8.5 \leq x \leq 28.5$

Is there an outlier? Yes, 1 and 40 are outliers.

