Problem Set

Calculate the IQR of each given data set. Determine whether there are any outliers in each set and list them.

1. The data are 4, 4, 5, 5, 8, 9, 10, 10, 12, 12, 16, 20, and 30.

$Q1 = 5, Q3 = 14$

$IQR = Q3 - Q1$

$= 14 - 5$

$= 9$

Lower Fence:

$Q1 - (IQR \cdot 1.5) = 5 - (9 \cdot 1.5)$

$= 5 - 13.5$

$= -8.5$

Upper Fence:

$Q3 + (IQR \cdot 1.5) = 14 + (9 \cdot 1.5)$

$= 14 + 13.5$

$= 27.5$

The value 30 is an outlier because it is greater than the upper fence.

2. The data are 0, 3, 10, 16, 16, 18, 20, 21, 22, 24, 25, 25, 27, 30, 35, and 41.

Name _____ Date _____

3. The data are 9, 15, 26, 30, 32, 32, 35, 36, 38, 40, 40, 45, and 59.

4. The data are 18, 25, 30, 32, 33, 33, 35, 38, 39, 40, 42, 43, 44, 48, and 55.

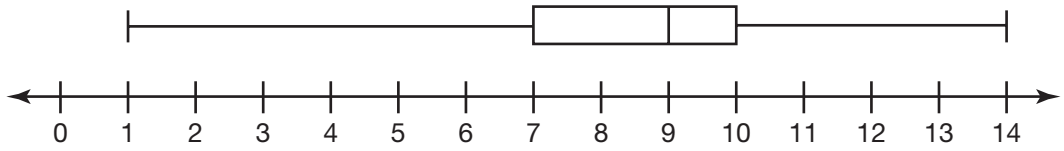
5. The data are 22, 19, 20, 20, 21, 25, 10, 8, 18, 28, 32, 24, and 25.

6. The data are 60, 55, 70, 80, 20, 60, 105, 65, 75, 100, 55, 15, 115, 65, 70, 45, and 60.

Name _____ Date _____

Calculate the IQR of the data set represented in each box-and-whisker plot and determine whether there are any outliers in each data set.

7.



Q1 = 7, Q3 = 10

IQR = Q3 − Q1
= 10 − 7
= 3

Lower Fence:

Q1 − (IQR · 1.5) = 7 − (3 · 1.5)
= 7 − 4.5
= 2.5

Upper Fence:

Q3 + (IQR · 1.5) = 10 + (3 · 1.5)
= 10 + 4.5
= 14.5

There is at least 1 outlier less than the lower fence because the minimum value of the data set is 1.

8.