

Math 153 - Quiz 4

February 21, 2019

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) The numbers shown below are the amounts of yearly snowfall, in inches, measured at O'Hare Airport in the years from 1968 to 1979.

~~10.4, 3.7, 9.5, 10.0, 7.6, 0.5, 7.4, 3.5, 10.0, 7.2, 21.9, 34.3~~

Compute the five-number summary, the IQR, and the outlier cutoff values.

0.5, 3.5, 3.7, 7.2, 7.4, 7.6, 9.5, 10.0, 10.0, 10.4, 21.9, 34.3

$$\frac{3.7+7.2}{2} = 5.45$$

$$\frac{7.6+9.5}{2} = 8.55$$

$$\frac{10+10.4}{2} = 10.2$$

5-Num Summ:

$$Min = 0.5$$

$$Q_1 = 5.45$$

$$Med = 8.55$$

$$Q_3 = 10.2$$

$$Max = 34.3$$

$$IQR = 10.2 - 5.45 = 4.75$$

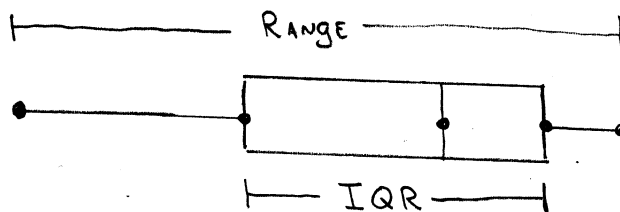
CUTOFFS:

$$5.45 - 1.5(4.75) = -1.675$$

$$10.2 + 1.5(4.75) = 17.325$$

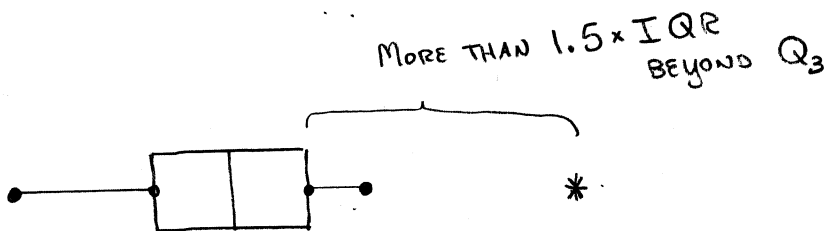
2. (2 points) Think carefully about the about the characteristics of a modified boxplot. For each part of this problem, sketch a boxplot that would correspond to a data set with the given properties.

- (a) The IQR is one-half of the range.



$$Range = 2 \times IQR$$

- (b) There is one outlier in the upper extreme.



TAKE-HOME PORTION OF QUIZ 4. DUE TUESDAY.

3. (5 points) The numbers given below are a random sample of movie budgets, in millions of dollars, from a certain studio. For convenience, the numbers are arranged in numerical order.

4.5	5	6.5	7	20	20	29	30	35	40
40	41	50	52	60	65	68	68	70	70
70	72	74	75	80	100	113	116	120	125
132	150	160	200	225					

35 VALUES

Construct the modified boxplot for the data. Use a ruler to make your number line.

QUARTILES:

$$\text{MEDIAN} = 18^{\text{TH}} \text{ VALUE} = 68$$

$$Q_1 = 9^{\text{TH}} \text{ VALUE} = 35$$

$$Q_3 = 9^{\text{TH}} \text{ FROM END} = 113$$

$$\text{IQR} = 113 - 35 = 78$$

CUTOFFS:

$$35 - 1.5(78) = -82$$

$$113 + 1.5(78) = 230$$



THERE ARE NO OUTLIERS.

