

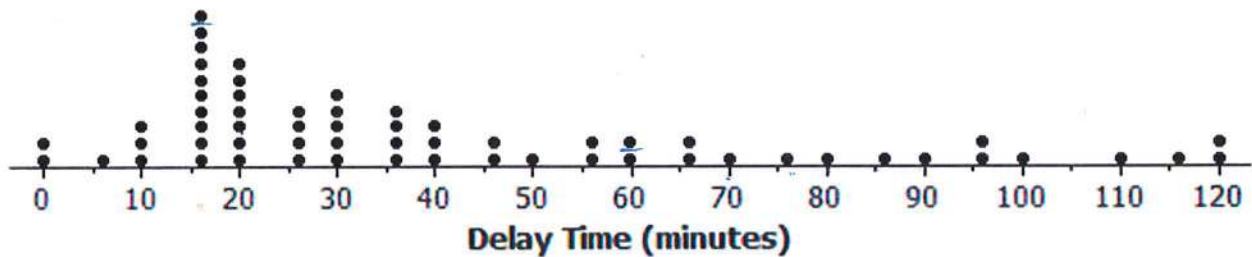
**Box Plots IQR Outliers Mixed Practice**  
Statistics – Algebra 1

Name:

Answers

Consider the following scenario. Transportation officials collect data on flight delays (the number of minutes a flight takes off after its scheduled time). Below is the dot plot of the delay times in minutes for 60 BigAir flights during December 2012.

**Dot Plot of December Delay Times**



1. How many flights left 60 or more minutes late?

14 flights

2. Why is this data distribution considered skewed?

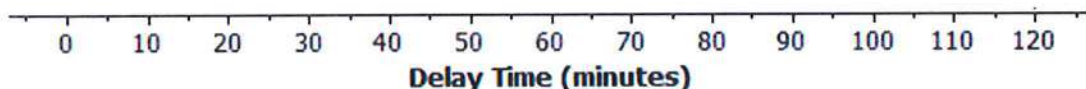
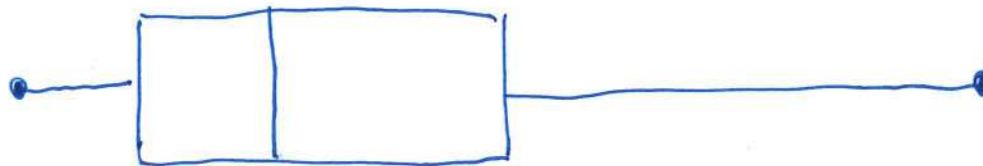
It's skewed right since there's a tail to the right.

3. Is the tail of this data distribution to the right or to the left? Does this make the data skewed left or skewed right?

Right. Skewed right.

4. Draw a box plot of the flights for December using the number line below. (Look at the example from the classwork to help you!) Identify the 5 statistical summary values.

min = 0  
 $Q_1 \approx 16$   
median = 30  
 $Q_3 \approx 60$   
max = 120



5. What is the interquartile range or IQR of this data set?

$$IQR = Q_3 - Q_1 = 60 - 16 = 44 \text{ min. approximately}$$

6. The mean of the 60 flight delays is approximately 42 minutes. Do you think that 42 minutes is typical of the number of minutes a BigAir flight was delayed? Why or why not? Since the tail "pulls" the mean up, the mean is NOT a good indicator of a typical late time. The median would be more accurate since it is less affected by the tail.

7. Based on the December data, write a brief description of the BigAir flight distribution for December.

median = 30, IQR  $\approx$  44, min = 0, max = 120

Most flights left late, with the majority of flights leaving between 10 - 40 minutes late, but a sprinkling of flights left up to 2 hours late.

8. Calculate the percentage of flights with delays of more than 1 hour. Were there many flight delays of more than 1 hour?

1 hr = 60 min

14 flights left more than 60 min. late

$$\frac{14}{60} = .23 \times 100\%$$

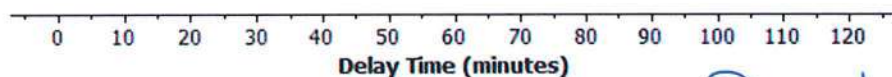
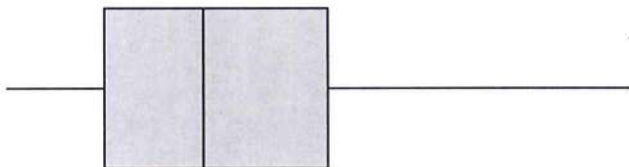
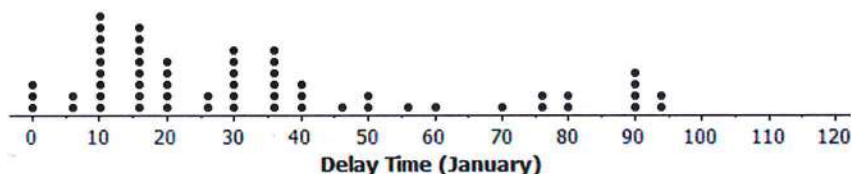
= about 23.3% of flights were over 1 hr late.

9. BigAir later indicated that there was a flight delay that was not included in the data. The flight not reported was delayed for 48 hours. If you had included that flight delay in the box plot, how would you have represented it? Explain your answer.

48 hrs would've been an outlier, so it would be a \* on the box plot.



10. Consider a dot plot and the box plot of the delay times in minutes for 60 BigAir flights during January 2013. How is the January flight delay distribution different from the one summarizing the December flight delays? In terms of flight delays in January, did BigAir improve, stay the same, or do worse compared to December? Explain your answer.



I think the Jan 2013 flights were less late overall.

The IQR box is smaller & ends around 50 rather than

December's 60 and Jan.'s max is under 100 whereas Dec. had 5 over 100 min.