Statistics Unit 1 worksheet: Box plots that show outliers

Name _____ Date _____ Period _____

1. The weights, in kilograms, of the 11 dogs entered in the large-breed class at a dog show are listed in order: 40, 44, 48, 49, 53, 56, 58, 59, 62, 63, 88. Find the five-number summary, the fences, any outliers, and where each whisker of the modified box plot ends.

2. A dog walker timed her 10 walks one week, in minutes, in order: 27, 29, 33, 34, 37, 39, 42, 45, 63, 71.

(a) Find the five-number summary and the fences.

(b) Which times are outliers?

(c) Where does each whisker of the modified box plot end?

3. (a) Write a list of 11 whole numbers whose modified box plot has a box from 20 to 32 with its median at 26, whiskers ending at 14 and 38, and one dot, at 55. Show that your list gives this plot.

(b) Could the dot have been at 48 instead of 55, with the box and whiskers unchanged? Explain.

4. Leah logged the pages she read on 7 days: 10, 12, 14, 15, 16, 18, 30.

(a) Is 30 an outlier?

(b) On an eighth day she read 28 pages. With all 8 days, is 30 an outlier?

(c) Explain how adding one value changed the answer.

5. A data set has 11 values. What is the greatest number of them that can be outliers above the upper fence? Explain, and give a data set with that many.

6. Nine students did as many push-ups as they could in one minute: 12, 18, 20, 22, 25, 27, 29, 31, 48. Mei found the median 25 and the IQR 11 correctly, and $1.5 \times 11 = 16.5$. She then worked out the fences as $25 - 16.5 = 8.5$ and $25 + 16.5 = 41.5$, drew a dot at 48, drew the lower whisker to 12, and drew the upper whisker from the box out to 41.5.

Name Mei's two mistakes, and give the correct fences, outliers and whisker ends.

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