

Name: Answer Key

Date: 10/29/15

Box Plots Test

1) Below are the prices of iPhones at two competing Electronic stores:

Phones and More

345, 350, 356, 360, 375, 405

Q1 median Q3

Electronic Central

343, 370, 386, 392, 395, 402

Q1 median Q3

a) Identify the 5 main statistics of each set of data. (Parts needed for part b)

Phones and More

① min: 345

② max: 405

③ median: 358

④ Q1: 350

⑤ Q3: 375

Electronic Central

① min: 343

② max: 402

③ median: 389

④ Q1: 370

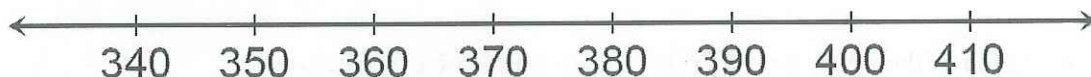
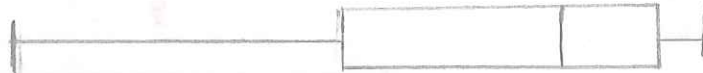
⑤ Q3: 395

b) Draw a double box plot of the above data on the scale below:

Phones and more :



Electronic Central:



c) What is the median price for an iPhone at Phones and More?

\$358

What is the lowest price you could pay for an iPhone at Electronic Central?

\$343

What is the most expensive phone at Phones and More?

\$405

What is the range of prices for phones at Electronic Central

$402 - 343 = \$59$

Which store would you rather buy an iPhone from? Why?

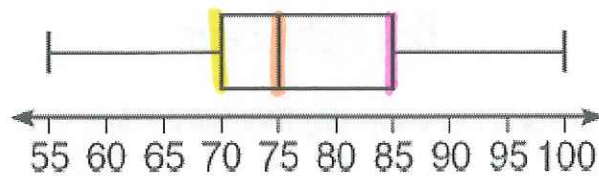
Phones and More because the middle 50% is cheaper than

What measures of central tendency do box plots help you see? Electronic Central.

- median

- middle 50%

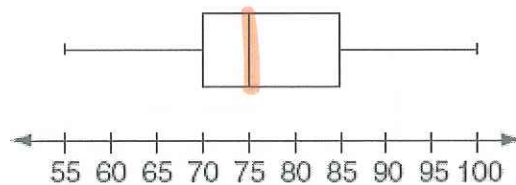
2) The accompanying box plot represents the scores earned on a math test.



- 1) What is the median score?
 - (a) 75
 - (b) 70
 - (c) 85
 - (d) 77
- 2) What score represents the first quartile?
 - (a) 55
 - (b) 70
 - (c) 100
 - (d) 75
- 3) What statement is *not* true about the box plot shown?
 - (a) 75 represents the mean score
 - (b) 100 represents the maximum score
 - (c) 85 represents the 3rd quartile
 - (d) 55 represents the minimum score
- 4) A score of an 85 on the box plot shown refers to:
 - (a) the third quartile
 - (b) the median
 - (c) the maximum score
 - (d) the mean

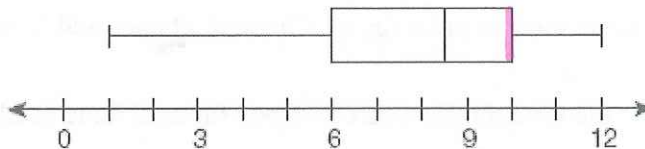
3) What is the median price for a skateboard at Middletown Skateboards?

- (a) 70
- (b) 75
- (c) 77
- (d) 85

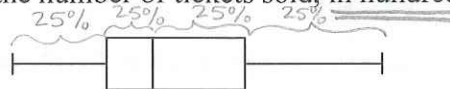


4) What is the value of the upper quartile (Q3) shown on the box plot below?

- (a) 6
- (b) 10
- (c) 8.5
- (d) 12

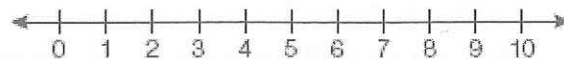


5) A movie theater recorded the number of tickets sold daily for a popular movie during the month of June. The box plot shown below represents the data for the number of tickets sold, in hundreds.

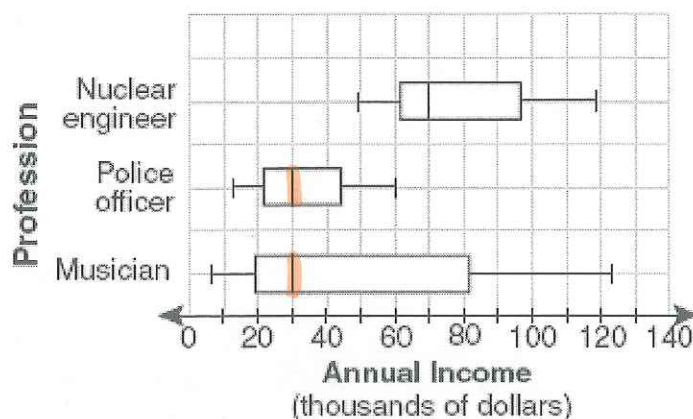


Which conclusion can be made using this plot?

- (a) The second quartile is 600.
- (b) The mean of the attendance is 400.
- (c) The range of the attendance is 300 to 600.
- (d) Twenty-five percent of the attendance is between 300 and 400.



6) The accompanying box plots can be used to compare the annual incomes of three professions.



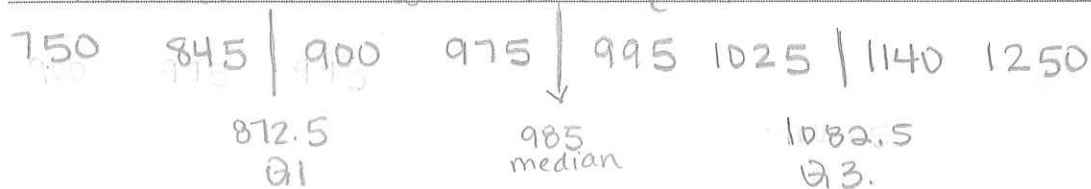
Based on the box plots above, which statement is true?

- (a) The median income for nuclear engineers is greater than the income of all musicians.
- (b) The median income for police officers and musicians is the same.
- (c) All nuclear engineers earn more than all police officers.
- (d) A musician will eventually earn more than a police officer.

7. BONUS: Given the provided information, write a paragraph describing the steps you would take to make a box plot for the information. Be sure to be as detailed as possible and remember the characteristics of a good expository writing.

Haley polled her friends about the number of text messages they send in a month. The number of text messages from her and her 7 friends is: 1025, 995, 900, 750, 1250, 1140, 975, 845

First, put the numbers in order from least to greatest. Find the middle number of the data. Next, find the median. Since there are 8 data, the median is half way between the 4th and 5th positions, 985. Then, find Q1, which is the median of the lower half, 872.5. You find Q3 next, which is the median of the upper half of the data, 1082.5. The last two things you need are the minimum, 750, and the maximum, 1250. To make the box, make a rectangle starting at 872.5 and ending at 1082.5. Draw a line at the median, 985, from top to bottom. Next, draw a line from 750 to 872.5. Finally, draw a line from 1082.5 to 1250. This needs to be drawn above a number line with an equal scale.



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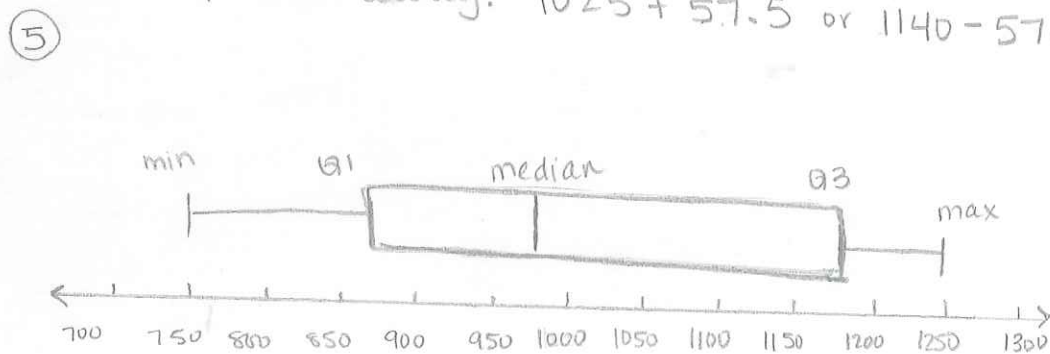
Visual for the BONUS (this is not part of the direction, just added for extra explanation)

① 750 845 900 975 995 1025 1140 1250

② Total of 8 data, half means there are 4 data on each side. This puts the median exactly between 975 and 995. Since there are 20 places between 975 and 995, half way would be 10 away. $975 + 10$ or $995 - 10$ is 985. So the median is 985.

③ The lower half is 750 845 900 975. Since there are 4 data, half means 2 on each side, so the median of the lower half is exactly between 845 and 900. Since there are 55 places between 845 and 900, half way would be 27.5 away. $845 + 27.5$ or $900 - 27.5$ is 872.5. This is Q1.

④ The upper half is 995 1025 1140 1250. Since there are 4 data, half means 2 on each side, so the median of the upper half is exactly between 1025 and 1140. Since there are 115 places between 1025 and 1140, half way would be 57.5 places away. $1025 + 57.5$ or $1140 - 57.5$ is 1082.5.



Number of Text messages

