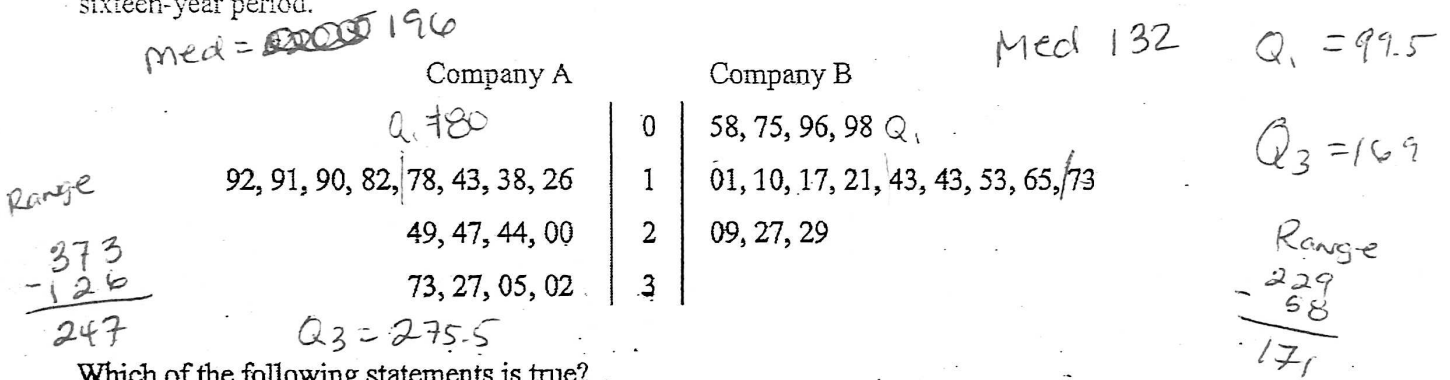1. The statistics below provide a summary of the distribution of heights, in inches, for a simple random sample of 200 young children.

> Mean: 46 inches
> Median: 45 inches
> Standard Deviation: 3 inches
> First Quartile: 43 inches
> Third Quartile: 48 inches

About 100 children in the sample have heights that are

(A) less than 43 inches
(B) less than 48 inches
(C) between 43 and 48 inches
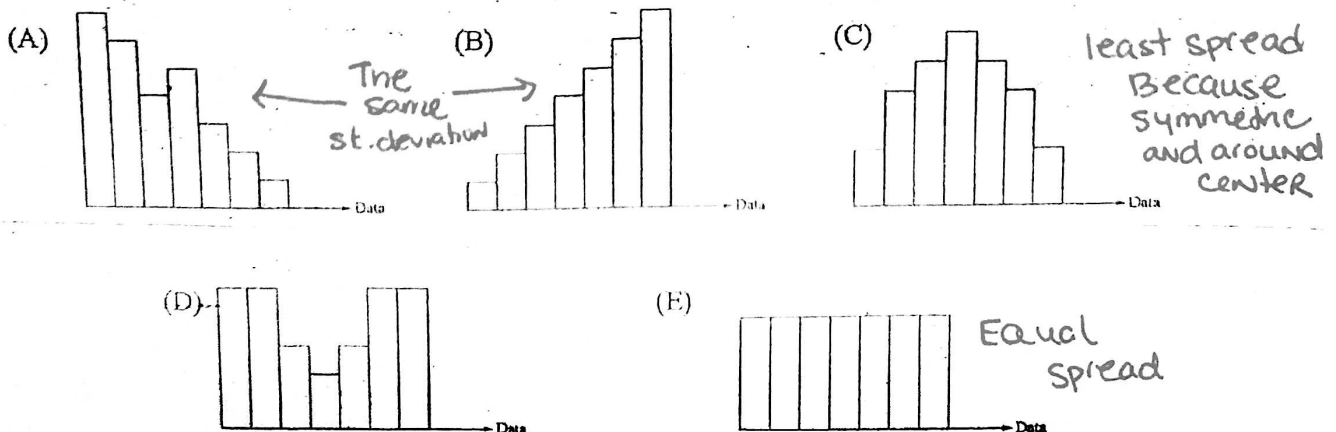(D) between 40 and 52 inches
(E) more than 46 inches

---

7. The stemplot below shows the yearly earnings per share of stock for two different companies over a sixteen-year period.

med = ~~220000~~ 196

Med 132 $Q_1 = 99.5$

	Company A		Company B
$Q_1 780$		0	58, 75, 96, 98 Q_1
92, 91, 90, 82,	78, 43, 38, 26	1	01, 10, 17, 21, 43, 43, 53, 65, 73
	49, 47, 44, 00	2	09, 27, 29
	73, 27, 05, 02	3	

$Q_3 = 169$

Range

$$\begin{array}{r} 229 \\ - \ 58 \\ \hline 171 \end{array}$$

Range

$$\begin{array}{r} 373 \\ -126 \\ \hline 247 \end{array}$$

$Q_3 = 275.5$

Which of the following statements is true?
(A) The median of the earnings of Company A is less than the median of the earnings of the Company B.
(B) The range of the earnings of Company A is less than the range of the earnings of Company B.
(C) The third quartile of Company A is smaller than the third quartile of Company B.
(D) The mean of the earnings of Company A is greater than the mean of the earnings of Company B.
(E) The interquartile range of Company A is twice the interquartile range of Company B.

---

15. The histograms below represent the distribution of five different data sets, each containing 28 integers, from 1 through 7, inclusive. The horizontal and vertical scales are the same for all graphs. Which graph represents the data set with the largest standard deviation.

(A)

(B)   ← The same → st. deviation

(C)   least spread Because symmetric and around center

(D)

(E)   Equal spread

18. One hundred people were interviewed and classified according to their attitude toward small cars and their personality type. The results are shown in the table below.

		Personality Type		
		Type A	Type B	Total
Attitude Toward Small Cars	Positive	25	12	37
	Neutral	11	9	20
	Negative	24	19	43
	Total	60	40	100

Which of the following is true?

(A) Of the three attitude groups, the group with the negative attitude has the highest proportion of type A personality types. .68   vs .55 vs .56

(B) Of the three attitude groups, the group with the neutral attitude has the highest proportion of type B personality types.   .32 vs .45 vs .44

(C) For each personality type, more than half of the 100 respondents have a neutral attitude toward small cars.

(D) The proportion that has a positive attitude toward small cars is higher among people with a type B   .3   personality type than among people with a type A personality type.

(E) More than half of the 100 respondents have a type A personality type and a positive attitude toward small cars.
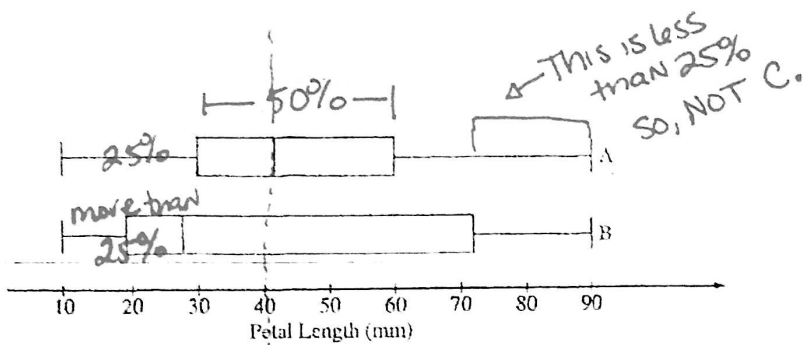
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24. The histogram below displays the times, in minutes, needed for each chimpanzee in a sample of 26 to complete a simple navigational task.

13th is in here so median is 20-30
So 13th is the Med
New MAX 70
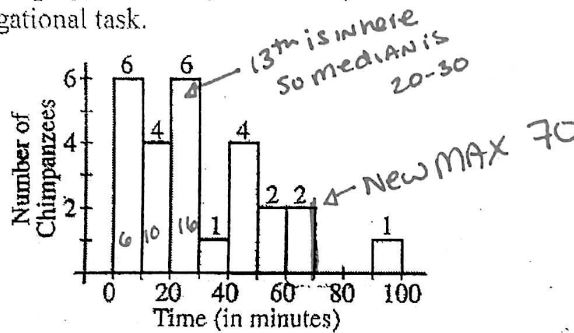
It was determined that the largest observation, 93, is an outlier since $Q_3 + 1.5(Q_3 - Q_1) = 87.125$. Which of the following boxplots could represent the information in the histogram?

(A) *New max is 85*

(B) *New max is 85*

(C) *M<20*

(D)

(E) *M<20*

Handwritten annotations on boxplot: ⊢50%⊣ ⊢25%⊣ more than 25% ↖This is less than 25% so, NOT C.

A — Petal Length (mm) axis: 10 20 30 40 50 60 70 80 90

Labels A and B on the two boxplots.

29. A botanist is studying the petal lengths, measured in millimeters, of two species of lilies. The boxplots above illustrate the distribution of petal lengths from two samples of equal size, one from species A and the other from species B. Based on these boxplots, which of the following is a correct conclusion about the data collected in this study?

(A) The interquartile ranges are the same for both samples. *A-IQR≈30   B-IQR≈52*
(B) The range for species B is greater than the range for species A. *Both have equal Range*
(C) There are more petal lengths that are greater than 70 mm for species A than there are for species B.
(D) There are more petal lengths that are greater than 40 mm for species B than there are for species A. *A is ≈50%*
(E) There are more petal lengths that are less than 30 mm for species B than there are for species A. *B less than 50%*

2003 Exam

Data set I
Data set II

20   30 35   45 50   60
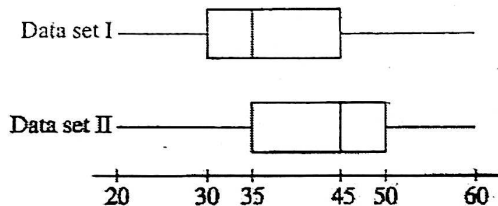
14. The boxplots shown above summarize two data sets, I and II. Based on the boxplots, which of the following statements about these two data sets CANNOT be justified?

(A) The range of data set I is equal to the range of data set II. *Yes (Both have 60-20=40)*
(B) The interquartile range of data set I is equal to the interquartile range of data set II. *Yes Both equal 45-30=   50-35=15*
(C) The median of data set I is less than the median of data set II. *Yes A=35 B=45*
(D) Data set I and data set II have the same number of data points. *NO WAY you can determine how many observations*
(E) About 75% of the values in data set II are greater than or equal to about 50% of the values in data set I.

yes, II→Q₁(35) and above is 75% of data
I→M(35) and above is 50% of data

20. A small town employs 34 salaried, nonunion employees. Each employee receives an annual salary increase of between $500 and $2,000 based on a performance review by the mayor's staff. Some employees are members of the mayor's political party, and the rest are not.

Students at the local high school form two lists, A and B, one for the raises granted to employees who are in the mayor's party, and the other for raises granted to employees who are not. They want to display a graph (or graphs) of the salary increases in the student newspaper that readers can use to judge whether the two groups of employees have been treated in a reasonably equitable manner.

Which of the following displays is least likely to be useful to readers for this purpose?

(A) Back-to-back stemplots of A and B

(B) Scatterplot of B versus A

(C) Parallel boxplots of A and B

(D) Histograms of A and B that are drawn to the same scale

(E) Dotplots of A and B that are drawn to the same scale

SKIP

AP STATISTICS TEST SCORES
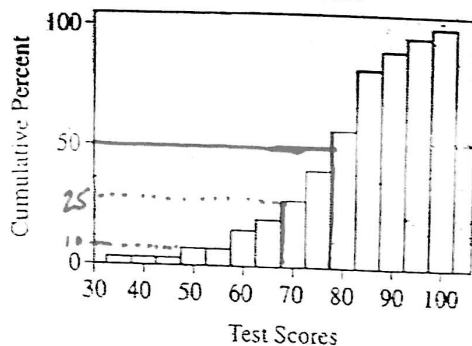
27. The figure above shows a cumulative relative frequency histogram of 40 scores on a test given in an AP Statistics class. Which of the following conclusions can be made from the graph?

(A) There is greater variability in the lower 20 test scores than in the higher 20 test scores.

(B) The median test score is less than 50. *10% are less than 50*

(C) Sixty percent of the students had test scores above 80. *Below*

(D) If the passing score is 70, most students did not pass the test. *ONLY 25% Failed*

(E) The horizontal nature of the graph for test scores of 60 and below indicates that those scores occurred most frequently. *DOES NOT even make sense*

1997 Exam
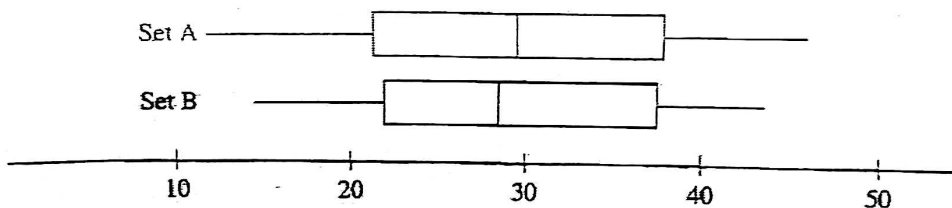
10. The boxplots above summarize two data sets, A and B. Which of the following must be true?

   I.   Set A contains more data than Set B.
   II. The box of Set A contains more data than the box of Set B.
   III. The data in Set A have a larger range than the data in Set B.

False, we can not be sure of how many observations there are in a box plot.

(A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III

21. A company wanted to determine the health care costs of its employees. A sample of 25 employees were interviewed and their medical expenses for the previous year were determined. Later the company discovered that the highest medical expense in the sample was mistakenly recorded as 10 times the actual amount. However, after correcting the error, the corrected amount was still greater than or equal to any other medical expense in the sample. Which of the following sample statistics must have remained the same after the correction was made?

(A) Mean
(B) Median → *This is a position*
(C) Mode
(D) Range
(E) Variance

only MAX changes, still same # of data. Still same middle