

Quiz #5

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2021-09-18

Problem 1. (3 points)

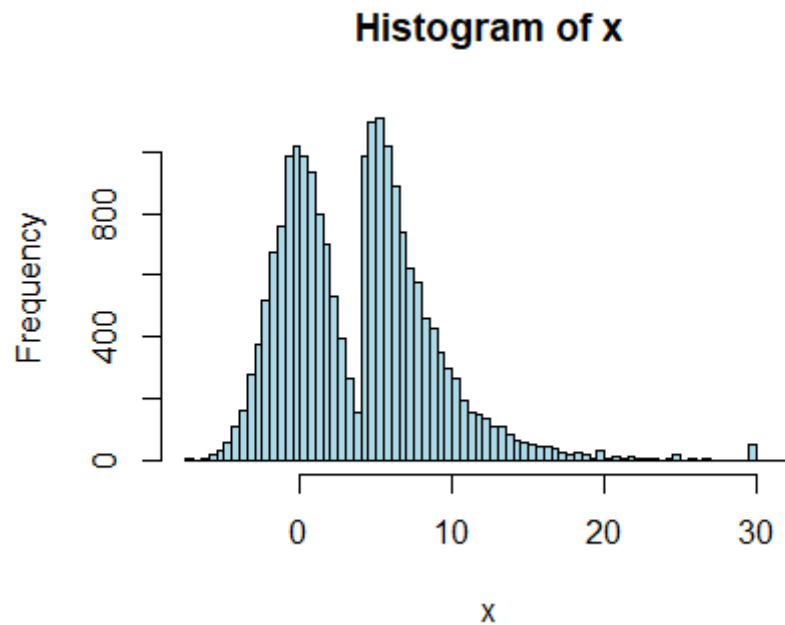
Please, provide an example from real life (including what you may have read in the press) of **sampling bias** due to *voluntary response*.

Solution:

Problem 2. (2 points)

Consider the following histogram:

```
knitr::include_graphics("hist.png")
```



The histogram is ...

- a. unimodal.
- b. bimodal, symmetric.
- c. bimodal, asymmetric.
- d. trimodal.
- e. uniform.

Why?

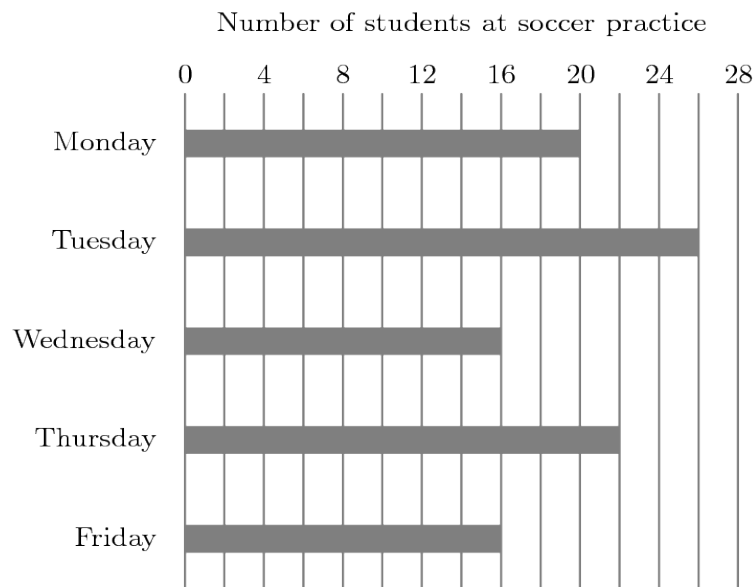
Solution:

Problem 3. (5 points)

Source: AMC8, 2019.

The diagram shows the number of students at soccer practice each weekday during last week. After computing the mean and median values, Coach discovers that there were actually 21 participants on Wednesday.

```
knitr::include_graphics("amc-8.png")
```



Which of the following statements describes the change in the mean and median after the correction is made?
Why?

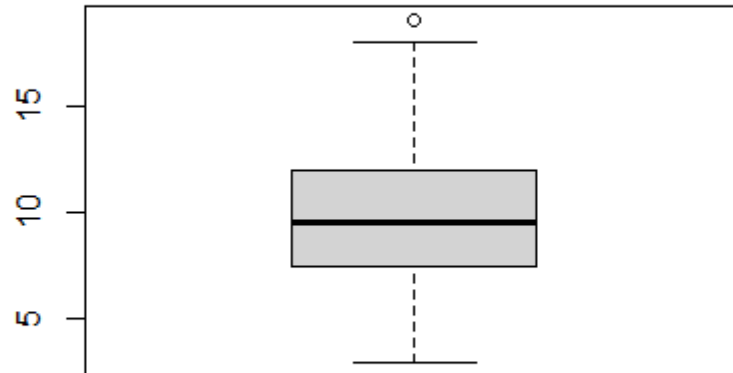
- a. The mean increases by 1 and the median does not change.
- b. The mean increases by 1 and the median increases by 1.
- c. The mean increases by 1 and the median increases by 5.
- d. The mean increases by 5 and the median increases by 1.
- e. The mean increases by 5 and the median increases by 5.

Solution:

Problem 4. (5 points)

Consider the following box plot:

```
knitr::include_graphics("boxplot.png")
```



Which summary statistics does it correspond to?

- a.

Min.	Q1	Median	Mean	Q3	Max.
3.00	7.75	9.50	9.95	12.00	19.00
- b.

Min.	Q1	Median	Mean	Q3	Max.
3.00	7.75	9.50	9.95	12.00	17.00
- c.

Min.	Q1	Median	Mean	Q3	Max.
0.00	7.75	8.00	9.95	12.00	17.00
- d.

Min.	Q1	Median	Mean	Q3	Max.
3.00	7.75	9.50	9.95	10.00	17.00
- e. None of the above.

Solution: