**Walk the Walk**

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We gathered a sample of the number of banners that were the triangle that had Longwood University on them. Please use the data generated, available on Canvas, to answer the following questions.

1. Describe whether you feel this is a simple random sample for this data.

No, this isn’t a simple random sample because it is only one Math 171 class.

1. Find the mean, standard deviation and five-number summary of the number of banners seen in this sample. Put this information in a table for easy reading and comparison. Visualize the distribution with graphs and then describe the distribution (shape, center, and spread) of the data.

|  |  |
| --- | --- |
| Mean: | x̄ = 136.0345 |
| Standard Deviation: | Sx = 21.5779 |
| Minimum: | minx = 77 |
| Q1: | 121.5 |
| Median: | med = 138 |
| Q3: | 155 |
| Maximum: | maxX = 170 |

Histogram window: Xmin=77, Xmax=185.5

Boxplot window: Xmin=67.7, Xmax=179.3

Shape: symmetric, slightly left skewed, possibly bimodal

Center: median=138

Spread: max-min=170-77=93

1. Does either distribution have any outliers? Why or why not? Justify your answer mathematically.

There are no outliers.

IQR=Q3-Q1=155-121.5=33.5

33.5(1.5)=50.25

Q1-50.25=121.5-50.25=71.25 < min (77) so no outliers below

Q3+50.25=155+50.25=205.25 > max (170) so no outliers above

1. Compute a 95% confidence interval for the mean number of banners found with “Longwood University” on them. What is the margin of error in this case? Include all steps.
2. μ = mean number of banners found with “Longwood University” on them
3. T-Int: no σ, SRS unknown—use caution, n > 30 X 🡪 no strong skew, no outliers (windows listed in question #2)
4. (127.83, 144.24)
5. We are 95% confident that the mean number of banners found with “Longwood University” on them is between 127.83 and 144.24

Margin of Error: (144.24-127.83)/2 = 8.205