

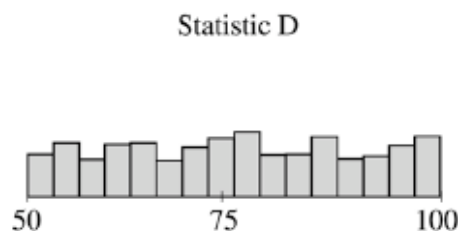
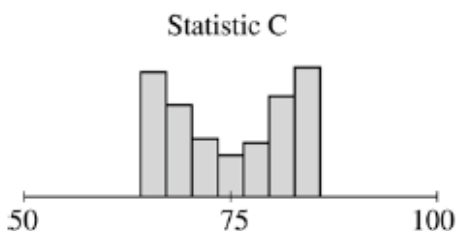
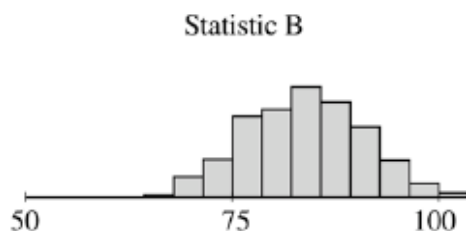
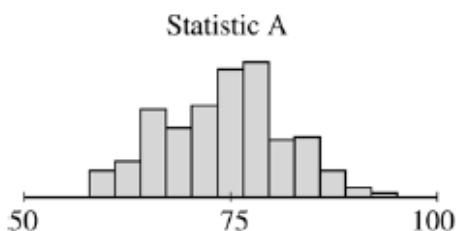


# “FRAPPY”

{Free Response AP Problem...Yay!}

The following problem is taken from an actual Advanced Placement Statistics Examination. Your task is to generate a complete, concise statistical response in 15 minutes. You will be graded based on the AP rubric and will earn a score of 0-4. After grading, keep this problem in your binder for your AP Exam preparation.

Four different statistics have been proposed as estimators of a population parameter. To investigate the behavior of these estimators, 500 random samples are selected from a known population and each statistic is calculated for each sample. The true value of the population parameter is 75. The graphs below show the distribution of values for each statistic.



## Scoring:

(a) Which of the statistics appear to be unbiased estimators of the population parameter? How can you tell?

**E P I**

(b) Which of statistics A or B would be a better estimator of the population parameter? Explain your choice.

**E P I**

(c) Which of statistics C or D would be a better estimator of the population parameter? Explain your choice.

**E P I**

**Total: \_\_/4**