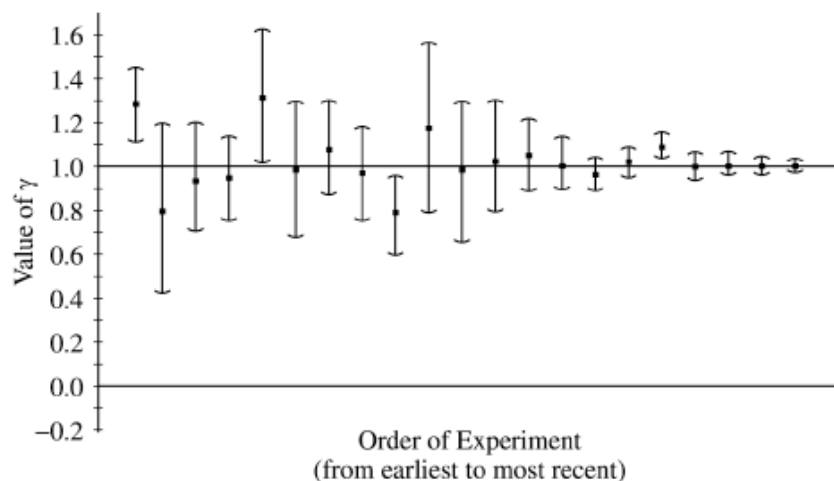




## “FRAPPY” {Free Response AP Problem...Yay!}

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.

In 1915 Einstein’s theory predicted that the curvature of space, denoted by  $\gamma$ , was 1, while Newtonian theory predicted it was 0. Since 1915 scientists have repeatedly found estimates of  $\gamma$  using various methods and procedures. Each estimate has a margin of error. The figure below displays (estimate  $\pm$  margin of error) from each of 21 experiments.



### Scoring:

(a) Based on the display above, describe how the precision of the estimates of  $\gamma$  has changed over time.

**E P I**

(b) Write a few sentences describing the strength of evidence the experiments provide for the claim from Newtonian theory that  $\gamma = 0$ . Your response must include justification based on the display.

**E P I**

(c) Write a few sentences describing the strength of evidence the experiments provide for the claim from Einstein’s theory that  $\gamma = 1$ . Your response must include justification based on the display.

**E P I**

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