



“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.

Die A has four 9's and two 0's on its faces. Die B had four 3's and two 1's on its faces. When either of these dice is rolled, each face has an equal chance of landing on top. Two players are going to play a game. The first player selects a die and rolls it. The second player rolls the remaining die. The winner is the player whose die has the higher number on top.

Scoring:

- (a) Suppose you are the first player and you want to win the game. Which die would you select? Justify your answer.

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- (b) Suppose the player using die A receives 45 tokens each time he or she wins the game. How many tokens must the player using die B receive each time he or she wins in order for this to be a fair game? Explain how you found your answer.

(A fair game is one in which the player using die A and the player using die B both end up with the same number of tokens in the long run.)

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Total: __/4