

An airline claims that there is a 0.10 probability that a coach-class ticket holder who flies frequently will be upgraded to first class on any flight. This outcome is independent from flight to flight. Sam is a frequent flier who always purchases coach-class tickets.

- (a) What is the probability that Sam's first upgrade will occur after the third flight?
- (b) What is the probability that Sam will be upgraded exactly 2 times in his next 20 flights?
- (c) Sam will take 104 flights next year. Would you be surprised if Sam receives more than 20 upgrades to first class during the year? Justify your answer.