

Problem 2: #FireGeno (30 points)

As of April 2016, the margin of victory per game by the UConn women's basketball team has a mean of 40 and a standard deviation of 10. Suppose the margin of victory per game follows a normal distribution.

- (a) Using the Z -table, find the probability p (to 4 decimal places) that in a given game, UConn does NOT win by more than 20 points.

A shadow organization is unhappy with the fact that UConn does not always win by more than 20 points in every game. It issues the following #FireGeno decree, which proclaims that

“If, by the end of a 36-game season, UConn fails to win by more than 20 points for a total of 3 games or more, then Geno should be fired.”

In what follows, you may assume that the point distribution in each game is independent and identically distributed. Express your answers in terms of p defined in Part (a).

- (b) What is the probability that the proclamation becomes true?
- (c) What is the probability that the proclamation becomes true on the 36th game?