3) Suppose we collect data for a group of students in a statistics class with variables *X*1 =hours studied, *X*2 =undergrad GPA, and *Y* = receive an A. We fit a logistic regression and produce estimated coefficient, *β*0 = *−*6*, β*1 = 0*.*05*, β*2 = 1.

Ans:

We know that Logistic regression is given as

Log(p/(1-p)) =

Therefore,

Log(p/(1-p)) =

1. Estimate the probability that a student who studies for 40 h and has an undergrad GPA of 3*.*5 gets an A in the class.

Ans: Given

Probability that class gets A is;

P =

P =

P = 0.3775

(b) How many hours would the student in part (a) need to study to have a 50% chance of getting an A in the class?

Ans: Given Probability of the class getting A is P=0.5 and undergrad GPA , x2= 3.5

= 0.5

X1 = 50