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4.3.R1

1/1 point (graded)

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 coefficients $\hat{\beta}_o = -6, \hat{\beta}_1 = 0.05, \hat{\beta}_2 = 1$.

Estimate the probability that a student who studies for 40h and has an undergrad GPA of 3.5 gets an A in the class (within 0.01 accuracy):

0.38 ✔ **Answer:** .3775

0.38

Explanation

We know that $P((40, 3.5)) = \frac{e^{-6+.05*40+1*3.5}}{1+e^{-6+.05*40+1*3.5}} = .37554$

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Answers are displayed within the problem

4.3.R2

1/1 point (graded)

How many hours would that student need to study to have a 50% chance of getting an A in the class?:

50 ✔ **Answer:** 50

50

Explanation

We have $P((h, 3.5)) = \frac{e^{-6+.05*h+1*3.5}}{1+e^{-6+.05*h+1*3.5}} = .5$. Rearranging gives $-6 + .05 * h + 1 * 3.5 = 0$ or $h = 50$

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