

[Courseware \(/courses/MITx/15.071x/1T2014/courseware/\)](/courses/MITx/15.071x/1T2014/courseware/)[Course Info \(/courses/MITx/15.071x/1T2014/info/\)](/courses/MITx/15.071x/1T2014/info/)[Discussion \(/courses/MITx/15.071x/1T2014/discussion/forum/\)](/courses/MITx/15.071x/1T2014/discussion/forum/)[Progress \(/courses/MITx/15.071x/1T2014/progress/\)](/courses/MITx/15.071x/1T2014/progress/)[yllabus \(/courses/MITx/15.071x/1T2014/4264e68418f34d839cf0b33a5da644b2/\)](/courses/MITx/15.071x/1T2014/4264e68418f34d839cf0b33a5da644b2/)[Schedule \(/courses/MITx/15.071x/1T2014/2891f8bf120945b9aa12e6601739c3e6/\)](/courses/MITx/15.071x/1T2014/2891f8bf120945b9aa12e6601739c3e6/)

Help

## QUICK QUESTION 3 (3/3 points)

Suppose the coefficients of a logistic regression model with two independent variables are as follows:

$$\beta_0 = -1.5, \quad \beta_1 = 3, \quad \beta_2 = -0.5$$

And we have an observation with the following values for the independent variables:

$$x_1 = 1, \quad x_2 = 5$$

What is the value of the Logit for this observation? Recall that the Logit is  $\log(\text{Odds})$ .

**Answer:** -1

## EXPLANATION

The Logit is just  $\log(\text{Odds})$ , and looks like the linear regression equation. So the Logit is  $-1.5 + 3*1 - 0.5*5 = -1$ .

What is the value of the Odds for this observation? Note that you can compute  $e^x$ , for some number  $x$ , in your R console by typing `exp(x)`. The function `exp()` computes the exponential of its argument.

**Answer:** 0.3678794

## EXPLANATION



Using the value of the Logit from the previous question, we have that  $\text{Odds} = e^{(-1)} = 0.3678794$ .

What is the value of  $P(y = 1)$  for this observation?

**Answer:** 0.2689414

## EXPLANATION

Using the Logistic Response Function, we can compute that  $P(y = 1) = 1/(1 + e^{(-\text{Logit})}) = 1/(1 + e^{(1)}) = 0.2689414$ .

*You have used 1 of 5 submissions*



About (<https://www.edx.org/about-us>) Jobs (<https://www.edx.org/jobs>)  
Press (<https://www.edx.org/press>) FAQ (<https://www.edx.org/student-faq>)  
Contact (<https://www.edx.org/contact>)



EdX is a non-profit created by founding partners Harvard and MIT whose mission is to bring the best of higher education to students of all ages anywhere in the world, wherever there is Internet access. EdX's free online MOOCs are interactive and subjects include computer science, public health, and artificial intelligence.



(<http://www.meetup.com/edX-Global-Community/>)



(<http://www.facebook.com/EdxOnline>)



(<https://twitter.com/edXOnline>)



(<https://plus.google.com/108235383044095082>)



(<http://youtube.com/user/edxonline>)

© 2014 edX, some rights reserved.

Terms of Service and Honor Code -  
Privacy Policy (<https://www.edx.org/edx-privacy-policy>)