

Feedback — Quiz 4 ****Please Note: No Grace Period****

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Thank you. Your submission for this quiz was received.

You submitted this quiz on **Sat 11 Jul 2015 3:03 PM SGT**. You got a score of **6.00** out of **6.00**.

Question 1

Consider the space shuttle data `?shuttle` in the `MASS` library. Consider modeling the use of the autolander as the outcome (variable name `use`). Fit a logistic regression model with autolander (variable `auto`) use (labeled as "auto" 1) versus not (0) as predicted by wind sign (variable `wind`). Give the estimated odds ratio for autolander use comparing head winds, labeled as "head" in the variable `headwind` (numerator) to tail winds (denominator).

Your Answer	Score	Explanation
<input type="radio"/> -0.031		
<input type="radio"/> 0.031		
<input type="radio"/> 1.327		
<input checked="" type="radio"/> 0.969	✓ 1.00	
Total	1.00 / 1.00	

Question 2

Consider the previous problem. Give the estimated odds ratio for autolander use comparing head winds (numerator) to tail winds (denominator) adjusting for wind strength from the variable `magn`.

Your Answer	Score	Explanation
<input checked="" type="radio"/> 0.969	✓ 1.00	
<input type="radio"/> 0.684		

☐ 1.00☐ 1.485

Total

1.00 / 1.00

Question 3

If you fit a logistic regression model to a binary variable, for example use of the autolander, then fit a logistic regression model for one minus the outcome (not using the autolander) what happens to the coefficients?

Your Answer**Score****Explanation**☐ The coefficients change in a non-linear fashion.☐ The intercept changes sign, but the other coefficients don't.☐ The coefficients get inverted (one over their previous value).☒ The coefficients reverse their signs.

✓ 1.00

Total

1.00 /
1.00

Question 4

Consider the insect spray data `InsectSprays`. Fit a Poisson model using spray as a factor level. Report the estimated relative rate comparing spray A (numerator) to spray B (denominator).

Your Answer**Score****Explanation**☒ 0.9457

✓

1.00

☐ -0.056☐ 0.136

☐ 0.321

Total

1.00 / 1.00

Question 5

Consider a Poisson glm with an offset, t . So, for example, a model of the form `glm(count ~ x + offset(t), family = poisson)` where x is a factor variable comparing a treatment (1) to a control (0) and t is the natural log of a monitoring time. What is impact of the coefficient for x if we fit the model `glm(count ~ x + offset(t2), family = poisson)` where `t2 <- log(10) + t`? In other words, what happens to the coefficients if we change the units of the offset variable. (Note, adding $\log(10)$ on the log scale is multiplying by 10 on the original scale.)

Your Answer

Score

Explanation

☐ The coefficient estimate is divided by 10.

☐ The coefficient is subtracted by $\log(10)$.

☐ The coefficient estimate is multiplied by 10.

☒ The coefficient estimate is unchanged



1.00

Total

1.00 / 1.00

Question 6

Consider the data

```
x <- -5:5
y <- c(5.12, 3.93, 2.67, 1.87, 0.52, 0.08, 0.93, 2.05, 2.54, 3.87, 4.97)
```

Using a knot point at 0, fit a linear model that looks like a hockey stick with two lines meeting at $x=0$. Include an intercept term, x and the knot point term. What is the estimated slope of the line after 0?

Your Answer

Score

Explanation

☐ -1.024

☐ 2.037

☐ -0.183

☒ 1.013



1.00

Total

1.00 / 1.00