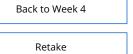


Quiz, 6 questions

X Try again once you are ready.

Required to pass: 80% or higher

You can retake this quiz up to 3 times every 8 hours.





1/1 points

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).



0.969

Correct

```
1 library(MASS)
2 data(shuttle)
3 ## Make our own variables just for illustration
4 shuttle$auto <- 1 * (shuttle$use == "auto")
5 shuttle$headwind <- 1 * (shuttle$wind == "head")
6 fit <- glm(auto ~ headwind, data = shuttle, family = binomial)
7 exp(coef(fit))
8 |</pre>
```

```
1 ## (Intercept) headwind
2 ## 1.3273 0.9687
3 |
```

```
1 ## (Intercept) relevel(wind, "tail")head
2 ## 1.3273 0.9687
```

1.327

-0.031

0.031



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.

0	7	- 1	0	^
		- 1	u	u

0.684

Correct

The estimate doesn't change with the inclusion of wind strength

```
1 shuttle$auto <- 1 * (shuttle$use == "auto")
2 shuttle$headwind <- 1 * (shuttle$wind == "head")
3 fit <- glm(auto ~ headwind + magn, data = shuttle, family = binomial)
4 exp(coef(fit))
5 |</pre>
```

```
1 ## (Intercept) headwind magnMedium magnOut magnStrong
2 ## 1.4852 0.9685 1.0000 0.6842 0.9376
3
```

1	##	(Intercept) relevel(wir	nd, "tail")head
2	##	1.4852	0.9685
3	##	magnMedium	magnOut
4	##	1.0000	0.6842
5	##	magnStrong	
6	##	0.9376	

1.485



1/1 points

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?

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- (The coefficients	changa in	a non-lingar	tachinh
	I THE COCHICICITIES	Change in	a Hon-illical	103111011

The coefficients get inverted (one over their previous value).

The coefficients reverse their signs.

	The intercept changes sign, but the other coefficients don't.
×	0 / 1 points
	er the insect spray data InsectSprays . Fit a Poisson model using spray as a factor level. Report the estimated relative r ring spray A (numerator) to spray B (denominator).
	0.9457
0	0.136
This	should not be selected
	0.321
	-0.056
×	0 / 1 points
5.	
glm(c and t glm(c	is the natural log of a monitoring time. What is impact of the coefficient for \mathbf{x} if we fit the model
	The coefficient estimate is divided by 10.
	The coefficient estimate is unchanged
	The coefficient estimate is multiplied by 10.
\bigcirc	
0	The coefficient is subtracted by log(10).

1/1



```
1 x <- -5:5
2 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?

-0.183

1.013

Correct

1 z <- (x > 0) * x 2 fit <- lm(y ~ x + z) 3 sum(coef(fit)[2:3])

1 ## [1] 1.013

2.037

-1.024

 \mathcal{C}

Н