Biology 4605 / 7220   Name _____

Quiz 11a   2 December 2015

1. From the following table, compute the mortality risk (% killed), the relative risk at high relative to low dose, the mortality odds [risk / (1 - risk)], and the mortality odds ratio at high dose relative to low.

            Insecticide dose
            Low   High
  Surviving   27   3

  Killed   27   27

        Odds _____   _____   Odds ratio   _____

        Risk _____   _____   Relative risk   _____

2. Write a generalized linear model (binomial error, logit link) to compare survival of polar bears at high and low seal density, controlled for body size. Be sure to assign a symbol and a name to all variables, both response and explanatory.

3. A physiologist compares the results of 2 experiments, with 6 levels in the experimental factor and 2 measurements at each of the 6 experimental levels.

                                                        State the sample size n _____

List explanatory variables with name and symbol, then state whether each is random or fixed factor.

Write a generalized linear model to test for treatment effects where the response variable is a count ranging from 0 to 5 events per minute.

Write a general linear model to test for treatment effects, where the response variable is a sodium concentration in moles/litre (Mol/L). Show degrees of freedom beneath each term in the model.