1. Women who have worked on farms are up to nine times as likely to develop breast cancer as those who have never been employed in agriculture, says a new study that is one of the first in Canada to look at the job histories of women who develop cancer (Martin Mittelstaedt in the Globe and Mail, Friday, Nov 22, 2002). The increase cannot be explained by well-known risk factors, such as a woman's genetic history.

Define symbols then write a model for Odds of cancer in relation to occupation (farm or not), age (born before or after 1947) and genetic history (8 categories)? Assume interactive effects between occupation and age. Assume 1900 cases in the study. Complete the first two columns of the analysis of deviance table.

Variable Name	Symbol
___Odds_____	_____
_____	_____
_____	_____
_____	_____

Source	df
intercept	1

GzLM $\underline{\text{Odds(Cancer)} = e^{\mu} + \text{error}}$

              $\mu = \underline{\hspace{10cm}}$

If the interaction term is significant, what does that mean?

2. Organize the following data (M = mutant, W = wild type) into three columns, Nmutant, Ntrial, Treatment. Compute the odds the animal having a mutation.

Radiated animals: W, W, W, M, M, W, W, W, W, W, M, M, M
Unradiated animals: W, W, W, W, W, M, W, W, W, M, W, W, W, M

Treatment	Nmutant	Ntrial	Odds of Mutant	Odds Ratio
_____				
_____				

3. Distinguish the following studies as retrospective (case-control) or prospective.

                                              retrospective   prospective

A. Comparison of the percent male and
female flies in DDT treated media.

B. Mark recapture experiment with moose.