

1. In an experiment with fruit flies, a geneticist obtained the following results from a dihybrid cross for sepia eye mutant and yellow bristle colour mutant. Fill in the five blanks. $G = 2 \sum \ln L$

	Observed f	Theory	Expected f _{hat}	f/f _{hat}	lnL
WildS WildY	272	9			
WildS Yellow	64	3	82.875		_____
Sepia WildY	85	3	82.875	_____	
Sepia Yellow	21	1	_____		
Total	_____	_____			

2. For the following data situations, state whether regression or correlation is appropriate, and then state why. State whether the coefficient (β for regression, r for correlation) is expected to be positive, negative, or unknown.

a. A biochemist is interested in the relation of rate of reaction to temperature.

Corr/regr _____ Why? _____ +/-/unknown _____

b. An entomologist is interested in leaf damage in relation to insecticide dose.

Corr/regr _____ Why? _____ +/-/unknown _____

c. A botanist is interested in the association of 5 species of trees in 28 plots.

Corr/regr _____ Why? _____ +/-/unknown _____

3. In a retrospective study an epidemiologist finds that the odds of Down's syndrome are 0.002:1 for a control group, and 0.03:1 for cases with a familial history of the syndrome.

Compute the case/control odds ratio (odds for cases / odds for control)
 OR _____

Obtain the parameter β where $OR = e^\beta$ $\beta =$ _____