**Problem 1:**

**If 98 out of 200 individuals in a population express the recessive phenotype, what percent of the population would you predict would be heterozygotes? Follow the steps if necessary:**

(a) I have given you information on the frequency of the homozygous recessive (or q2). So start by determining q2 and then solving for q.

(b) Now that you have q, you can solve for p. Remember there are only two alleles in the population, so if you add the frequency of the two alleles, you have accounted for all possibilities and it must equal 1. So p + q = 1.

(c) Now what is the formula for heterozygotes? Think back to the Hardy-Weinberg equation -- it is dealing with the genotypes of individuals in the population.

(d) Now that you have figured out the % of heterozygotes, can you figure out the % of homozygous dominant? Does the % of homozygous dominant, heterozygotes and homozygous recessive individuals add up to 100%? If not, you have made an error. Those are the only three genotypes possible with only two alleles and a simple dominant and recessive relationship.

**Problem 2:**

**If 81% of a population is homozygous recessive for a given trait..........**

What is the predicted frequency of homozygous dominant?

**Problem 3:**

**If 51% of the population carries at least one copy of the recessive allele.......**

What is the predicted frequency of individuals in the population that express the dominant phenotype?

What is the predicted frequency of individuals in the population that express the recessive phenotype?

**Problem 4: Multiple Choice Quiz**

<http://www.phschool.com/science/biology_place/labbench/lab8/quiz.html>

Sources: [Indiana](http://www.indiana.edu) University