Using Hardy Weinberg equations

1. In a survey of moths collected from a natural population, a researcher found 51 dark specimens and 49 light specimens. The dark moths carry a dominant allele, and the light moths are homozygous for a recessive allele. If the population is in Hardy–Weinberg equilibrium, what is the estimated frequencies of the following?

   I. the recessive allele

   II. the dominant allele

   III. the homozygous condition

   IV. the heterozygous genotype

   V. In a population of 200, how many moths are expected to be heterozygotes?

2. A very large population of randomly-mating laboratory mice contains 15% white mice. White coloring is caused by the double recessive genotype, "aa". Calculate allelic and genotypic frequencies for this population.

   F(aa)

   f(a)

   f(A)

   f(AA)

   f(Aa)