

Formative Assignment for Unit 5 Content Corrections - Complete each of the crosses on a separate sheet of paper.

1. Multiple Alleles: In a particular family, one parent has Type A blood, the other has Type B. They have four children. One has Type A, one has Type B, one has Type AB, and the last has Type O. What are the genotypes of all six people in this family?
2. Incomplete Dominance: Mr. and Mrs. Anderson both have tightly curled hair. (The hair form gene shows incomplete dominance. There are two alleles, curly and straight. The heterozygote has wavy hair.) The Andersons have a child with wavy hair. Mr. Anderson accuses Mrs. Anderson of being unfaithful to him. Is he necessarily justified? Why or why not?
3. Dihybrid: In garden peas, long stems are dominant to short stems, and yellow seeds are dominant to green seeds. 100 long/yellow pea plants, all of which had one short/green parent, are interbred (bred to each other). 1600 progeny result. Please answer the following questions about these progeny.
 - a. Assuming that these two genes are unlinked, how many long/green pea plants would you expect to find among the offspring?
 - b. What ratio of yellow to green seed color would you expect among the offspring?
 - c. What would you expect the overall phenotypic ratio among the 1600 offspring to be (taking into consideration both traits)?
4. Sex-Linked and Codominance: This gene has two alleles—orange (X^O) and black(X^B) and is linked to the X-chromosome. A heterozygous cat ($X^O X^B$) has a tortoiseshell color (a splotchy mixture of orange and black). Predict the genotypic and phenotypic frequencies among the offspring of the following crosses. **Pay careful attention to the genders of the offspring.**
 - a. Black female X Orange male
 - b. Orange female X Black male
 - c. Tortoiseshell female X Black male
 - d. Tortoiseshell female X Orange male