**Genetics Practice Problems 1—Class Set. Please do not write on this.**

Answer the following questions on your own sheet of paper. Make sure you show all work (draw out genetic diagrams completely!).

1) Use the following information for punnett squares about seals:   
 •The dominant allele for long whiskers = L  
 •The recessive allele for short whiskers = l

a) Draw a Punnett square an answer. What percentage of offspring would be expected to have short whiskers from the cross of two long-whiskered seals, one that is homozygous dominant and one that is heterozygous?

b) Draw a Punnett square an answer. If one parent seal is pure long-whiskered and the other is short-whiskered, what percent of offspring would have short whiskers?

2) In monsters, one-horn is dominant and no horns is recessive. Draw a Punnet Square showing the cross of a monster that is hybrid for horns with a monster that does not have horns. Summarize the genotypes & phenotypes of the possible offspring.

3) A solid green-leafed plant is crossed with a plant with yellow-striped leaves. The cross produces 185 solid green-leafed plants. Summarize the genotypes & phenotypes of the offspring that would be produced by crossing two of the solid green-leafed plants obtained from the initial parent plants. (Note that green is dominant to yellow and solid is dominant to striped)

4) Mendel found that crossing wrinkle-seeded plants with pure round-seeded plants produced only round-seeded plants. What genotypic & phenotypic ratios can be expected from a cross of a wrinkle-seeded plant & a plant heterozygous for this trait (seed appearance)?

5) Set up a dihybrid cross using the following information:   
 •Dominate allele for tall plants = D   
 •Recessive allele for dwarf plants = d   
 •Dominate allele for purple flowers = W   
 •Recessive allele for white flowers = w

Cross parent DdWW with parent DdWw. Describe the genotype and phenotype ratios.

6) Set up a dihybrid cross using the following information:   
 •Dominate allele for black fur in guinea pigs = B   
 •Recessive allele for white fur in guinea pigs =b   
 •Dominate allele for rough fur in guinea pigs = R   
 •Recessive allele for smooth fur in guinea pigs = r

Cross a heterozygous parent (BbRr) with a heterozygous parent (BbRr)

7) Set up a dihybrid cross using the following information:   
 •Dominate allele for normal coat color in wolves = N   
 •Recessive allele for black coat color in wolves = n   
 •Dominant allele for brown eyes = B   
 •Recessive allele for blue eyes = b

Generation 1: NnBb cross NNBB

What would be the expected genotype and phenotype ratios of a cross from the F2 generation?