**Punnett Square Problems**

**DIRECTIONS: YOU MUST SHOW YOUR WORK FOR ALL CROSSES!!!**

1. A pair of black (B) mice produce offspring that are black and some that are white (b). What are the genotypes of the parents?

2. Two individuals heterozygous for a given trait are mates. In the resulting offspring, what is the ratio of the dominant phenotype to the recessive phenotype for this trait?

3. In Dalmation dogs, the desired type is white with small black spots. Assume that the mating of two dogs, each with small black spots, results in some offspring with solid white coats, some offspring with large black spots, and some with small black spots. What is the probable genotype of the Dalmations with small black spots?

a. homozygous dominant c. heterozygous

b. homozygous recessive d. sex-linked recessive

4. In guinea pigs, rough hair is dominant to short hair. If heterozygotes are crossed, the largest number of any one genotype of offspring would be

a. homozygous straight hair c. heterozygous rough hair

b. homozygous rough hair d. intermediate between rough and straight hair

5. The genetic disease called cystic fibrosis is inherited through a recessive gene. If both parents are heterozygous for this trait, what is the probability that their offspring will be heterozygous?

6. In fruit flies, long wings are dominant over vestigial wings. If two flies heterozygous for this trait are crossed, what is the probability that their offspring will be heterozygous?

7. In peas, yellow seed color is dominant over green seed color. If a heterozygous yellow plant is crossed with a green plant, what is the probability that the offspring will be green?

8. Brown hair color is dominant to blonde hair color. If two brown-haired parents have one blonde-haired child, what is the probability that their second child will have brown hair?

9. An individual possesses two identical genes for a certain trait. For this trait, the individual is said to be:

a. dominant c. homozygous

b. hybrid d. heterozygous

10. The outward appearance of a particular trait in an organism is referred to as a(n):

a. genotype c. allele

b. phenotype d. chromosome