



5. Short hair is dominant over long hair in guinea pigs. A short haired guinea pig, one of whose parents was long haired, was mated with a long haired animal. If blindfolded, you selected one of their litter from the cage, what is the chance you would get a long haired animal? (use S and s)

### Genetics Problems Set 2

1. A couple preparing for marriage have had their blood typed along with the other required blood tests. Both are AB. They ask what blood types their children may have. What would you tell them? (Use  $I^A$ ,  $I^B$ ,  $i^o$  for the alleles)
2. Color blindness is a recessive sex-linked disorder in which an individual cannot distinguish between certain colors. If a woman who has normal color vision and whose father was color blind, has children with a color blind man, will any of their daughters be color blind? What are the expected genotypic and phenotypic ratios of the offspring? (show a pedigree and Punnett Square using  $X^B$ ,  $X^b$ , Y to support your answer)
3. A certain type of balding is a recessive sex-linked characteristic said to be passed on by the maternal grandfather. If your mother's father is bald and your mother and father are not bald, what are your chances of being bald if you are male? If you are female? (show a pedigree and Punnett Square using  $X^H$ ,  $X^h$ , Y to support your answer)



8. In radishes the shapes may be long, oval, or round. Crosses between long and oval gave 159 long and 156 oval. Crosses between long and round gave 576 oval. Crosses between oval and oval gave 121 long, 243 oval, and 119 round. What type of inheritance is involved? Justify your answer with a punnet square.
9. In cats, the gene for short hair is dominant over the gene for long hair (Angora). A short haired tom cat is mated with an Angora female. She bears eight kittens, six short haired and two long haired. What was the genotype of the parent cats?
10. Huntington's disease is a lethal autosomal dominant trait with no known cure. Suppose that a person who is heterozygous for this trait marries a person who is homozygous recessive for this trait. What is the probability that each child will inherit this disease? Show your work.