More Genetics Problems

Set #3

1. In purple people eaters, one-horn is dominant and no horns is recessive. Show the cross of

a purple people eater that is heterozygous for horns with a purple people eater that does not

have horns. What are the genotypic and phenotypic ratios of the possible offspring?

2. In seals, the gene for the length of the whiskers has two alleles. The dominant allele (A)

codes long whiskers & the recessive allele (*a*) codes for short whiskers. 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?

3. In pea plants, the green color allele (G) is dominant over yellow color allele (g) for seed color

and tall (T) is the dominant allele in plant height. Parents heterozygous for both traits are

cross-pollinated. Determine the frequency for the four different phenotypes of the offspring.

4. About 70% of Americans perceive a bitter taste from the chemical phenylthiocarbamide (PTC). The ability to taste this chemical results from a [dominant](http://www.ksu.edu/biology/pob/genetics/defin.htm#dom) allele (T) and not being able to taste PTC is the result of having two [recessive](http://www.ksu.edu/biology/pob/genetics/defin.htm#rec) alleles (t). Albinism is trait with normal pigment being [dominant](http://www.ksu.edu/biology/pob/genetics/defin.htm#dom) (A) and the lack of pigment being [recessive](http://www.ksu.edu/biology/pob/genetics/defin.htm#rec) (a). A normally pigmented woman who cannot taste PTC has a father who is an albino taster. She marries a [homozygous](http://www.ksu.edu/biology/pob/genetics/defin.htm#hom), normally pigmented man who is a taster but who has a mother that does not taste PTC. What are the [genotypes](http://www.ksu.edu/biology/pob/genetics/defin.htm#gen) of the possible children?