1 - Natural Selection

Mc1r Gene Missense Mutation		Pinacate Light Mouse Population	Pinacate Dark Mouse Population	Kenzin Dark Mouse Population	Armendaris Dark Mouse Population	Carrizozo Dark Mouse Population
018	mRNA	CGC	UGC	CGC	CGC	CGC
	Amino Acid	Arg	Cys	Arg	Arg	Arg
109	mRNA	CGG	UGG	CGG	CGG	CGG
	Amino Acid	Arg	Trp	Arg	Arg	Arg
160	mRNA	CGG	UGG	CGG	CGG	CGG
	Amino Acid	Arg	Trp	Arg	Arg	Arg
233	mRNA	CAA	CAC	CAA	CAA	CAA
	Amino Acid	Gln	His	Gln	Gln	Gln

Questions

1. Having color-matched fur with mice and their environment gives them an environmental advantage as they are harder to prey on when harder to spot. Light fur on light sand is an advantage and dark on dark is too, but a mismatch of colors will make them stick out in their environment.
2. 2
    I. It contains four mutations
    II. They do not have the mutation and the amino acid sequence is the same as the light color's, yet they still display dark fur.
    III. This shows that they have evolved the same phenotype through different genetic mutations. This also shows that some mutations or evolution are repeatable.
3. This is a theory that says the mutations that give a certain population an environmental or reproductive advantage will be more likely to survive to the next generation and will grow in proportion to the non-carriers. This means that "good" traits will be more likely to survive and will overtake the population.
4. Gene flow: literally just a fancy word for migration
   Genetic drift: When the population is small enough that it could just change by chance
   Mutation: A random change in the DNA of something, making new genes available to the population.
   Non-random mating: a trait or factor that increases likelihood that a particular specimen will reproduce
5. Gene flow could increase and decrease the population of dark haired mouse within these two populations, as there is a pathway of rocks between the two.