Assignment Number:\_\_\_\_\_\_\_

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_\_

**Exceptions to Mendel - The Post Mendel Era**

After the time of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ we have discovered most genes are more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ then simply \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Examples: Incomplete dominance, codominance, multiple alleles

**Incomplete Dominance** – the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_ different traits in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genotype

 Example: red and white crossed making pink

Practice Problem: If color exhibits incomplete dominance in violets, what will be the phenotypes of the offspring of a homozygous red and homozygous white plant?

**Co-dominance** – in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genotype both genes are \_\_\_\_\_\_\_\_\_ expressed

 Example: yellow begonias crossed with red end up looking yellow with red edges

Practice Problem 1: Cross a cat with black fur (B) with a cat that has tan fur (b). If we assume that fur color exhibits co-dominance, what will be the phenotypes of the offspring? (Hint: black and tan fur together make a color called ‘tabby’ in cats)

Practice Problem 2: What if we wanted to get some cats that have tan fur, some with black, and some tabby? What would have to be the phenotypes of the parents?

**Multiple Alleles** – More then \_\_\_\_\_\_\_\_\_ alleles can exist for one trait, each individual can only have \_\_\_\_\_\_. This lends to more than \_\_\_\_\_\_\_\_\_\_\_\_\_\_ possible genotypes.

Example: Blood type has 3 alleles that exist and there are 6 genotypes and 4 phenotypes possible.

Examples: Blood type

 IA IB i

Above are the three possible alleles for blood type. You have a combination of two of these.

Phenotype (Blood type) Genotype

IA and IB are co-dominant, and i is recessive

Practice Problem #1: What are the chances of a woman with Type AB and a man with Type A having a child with Type O?

Practice Problem #2: Dr. Paul is blood type O. His father was blood type A and his mother was blood type B, what were the genotypes of his parents?

Practice Problem #3: California Court Case. Was the judge correct?



**Polygenic** – describes a trait that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_\_\_ than one
pair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_, this allows for a variety of intermediates

Examples: Human height, skin color, hair color, body build

**Sex linked Inheritance** – a trait that travels on the \_\_\_\_\_ chromosome, results that \_\_\_\_\_\_\_ can NOT be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but women can. The only way for a woman to have a sex linked disorder is if her father has the disease and her mother either carries it or has it herself