

Name _____

Period _____

Regents Biology

Date _____

GENETICS PRACTICE 2: NON-MENDELIAN GENETICS

1. In radishes, the gene that controls color exhibits incomplete dominance. Pure-breeding red radishes crossed with pure-breeding white radishes make purple radishes. What are the genotypic and phenotypic ratios when you cross a purple radish with a white radish?

2. Crosses between a yellow rat and a yellow rat always produce yellow rats. Crosses between a white rat and a white rat always produce white rats. But crosses of a white with a yellow produce a cream rat. What are the genotype and phenotype ratios if you cross two creams?

3. In humans, the allele for albinism (lack of pigment) is recessive to the allele for normal skin pigmentation. If two heterozygous parents have children what is the chance that a child will be albino?

4. If normal parents have an albino child, what is the probability that their next child will be normal for pigment?

5. Achondroplasia (dwarfism) is caused by a dominant gene. A woman and a man both with dwarfism marry. If homozygous achondroplasia results in death of embryos, list the genotypes and phenotypes of all potential live-birth offspring.

6. The genes for hemophilia are located on the X chromosome. It is a recessive disorder. List the possible genotypes and phenotypes of the children from a man normal for blood clotting and a woman who is a carrier. (HINT: You have to keep track of what sex the children are!)
