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?

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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?

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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?

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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!)
