

Name: _____

Anatomy & Physiology: **The Genetics of Blood Disorders**

SHOW ALL WORK!

1. If a female is a carrier for hemophilia $X^H X^h$ and is married to a man with hemophilia $X^h Y$, what is the probability that she will have a daughter with hemophilia? _____



2. A normal female $X^H X^H$ marries a man who has hemophilia. What percentage of their sons will have hemophilia? _____

3. If a female has hemophilia and is married to a normal man...
a) What percentage of her sons will have hemophilia? _____
b) What percentage of her daughters will have hemophilia? _____

4. A woman with sickle cell anemia is married to a man who is a carrier for the trait.
(**a a** x **A a**). What is the probability of their children having sickle cell anemia? _____

5. What is the probability that two people who are both being carriers for sickle cell anemia) will have a child with the disease? _____

6. Von Willebrand Disease is an autosomal dominant disorder (not located on the sex chromosomes) where blood will not clot properly.
What would be the two possible genotypes of a person who has the disorder? _____

If a person is heterozygous (**Dd**) for the trait is married to a normal spouse (dd), what is the chance that their children will have the disorder. _____