**Pedigree Analysis**

Pedigree 1

Use Pedigree 1 to answer the following questions. Sickle cell anemia is an autosomal recessive trait. B=normal blood cells & b= sickle blood cells. This disorder causes defective hemoglobin proteins which carry less oxygen to the body. One out of every 500 African Americans has sickle cell anemia.

1. How many generations are shown in Pedigree 1? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. How many offspring did the parents in the first generation have? \_\_\_\_\_\_\_\_\_
3. What does the square in generation 1 stand for? Why is it not shaded? \_\_\_\_

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1. Which offspring was the first in the family to have th disease? \_\_\_\_\_\_\_\_\_\_
2. How many offspring in generation 3 carry the sickle cell trait? \_\_\_\_\_\_\_\_\_\_\_

Use Pedigree 2 to answer the following questions regarding Hemophilia, a sex-linked recessive disorder that affects one in every 10,000 white males. This disorder produces a defective protein that causes the blood to not clot.

1. How many marriages are show in this figure? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What would be the phenotypes of all the fully shaded males? \_\_\_\_\_\_\_\_\_\_\_\_\_
3. What would be th e genotypes of all the fully shaded individuals? \_\_\_\_\_\_\_\_\_
4. What is the genotype of a female carrier and a hemophiliac female? \_\_\_\_\_\_\_\_
5. Hemophilia is a sex-linked disorder. Is it carried on the X or the Y chromosome? \_\_\_