**Pedigree Worksheet**

22 Points

Use the given pedigrees to answer the following questions:



**I**

**II**

**III**

**IV**

**1**

**2**

**1**

**2**

**3**

**4**

**2**

**1**

**1**

**2**

**3**

**3**

**4**

The pedigree to the right shows the passing on of straight thumbs (recessive) and Hitchhiker’s Thumb (dominant) in a family. Shaded shapes mean the person has a straight thumb

1. What is the genotype of IV-1?
2. What is the genotype IV-3?
3. What is the genotype of III-1?
4. What is the genotype III-2?
5. What is the genotype II-3?
6. Is it possible for individual IV-2 to be a carrier? Why?



**I**

II

**III**

**IV**

**II**

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

1. The pedigree to the right shows the passing on of colorblindness (a recessive, ***sex-linked trait***). Fill in the numbers for each generation (generation IV is done for you).
2. What do the half shaded circles mean?
3. What is the ONLY sex carriers of colorblindness can be?
4. Which individuals are colorblind?
5. What is the genotype of person II-2?
6. What is the genotype of person I-1?
7. What is the genotype of person III-3?
8. If person IV-1 marries a female who is not colorblind and is not a carrier, what are the chances of their male offspring being colorblind? What about their female offspring?



**I 1 2**

= Sickle Cell Anemia

**II**

**1 2 3 4 5 6 7 8**

**III 1 2 3 4 5**

*NOTE- carriers are not shown on this pedigree although Sickle Cell Anemia IS A RECESSIVE DISORDER.*

1. Which members of the family above are afflicted with sickle cell anemia?
2. How are individuals III-4 and III-5 related?
3. How are individuals I-1 and I-2 related?
4. How are individuals II-7 and III-2 related?
5. How are individuals I-2 and III-5 related?
6. How many children did individuals I-1 and I-2 have?
7. How many girls did II-1 and II-2 have? \_\_\_\_\_\_\_\_\_\_\_ How many have sickle cell anemia?
8. Label the possible genotypes for all individuals in the pedigree. One person can have more than one possible genotype