



Human Pedigrees

Exercises

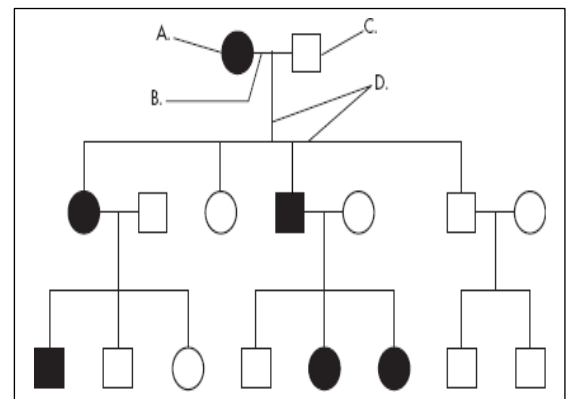
Questions 1, use the pedigree chart shown below, And answer the questions:-

- _____ 1. A male
- _____ 2. A female
- _____ 3. A marriage

- _____ 4. A person who expresses the trait
- _____ 5. A person who does not express the trait

- _____ 6. A connection between parents and offspring

- _____ 7. How many generations are shown on this chart?



Assuming the chart above is tracing the dominant trait of "White Forelock (F)" through the family. F is a tuft of white hair on the forehead.

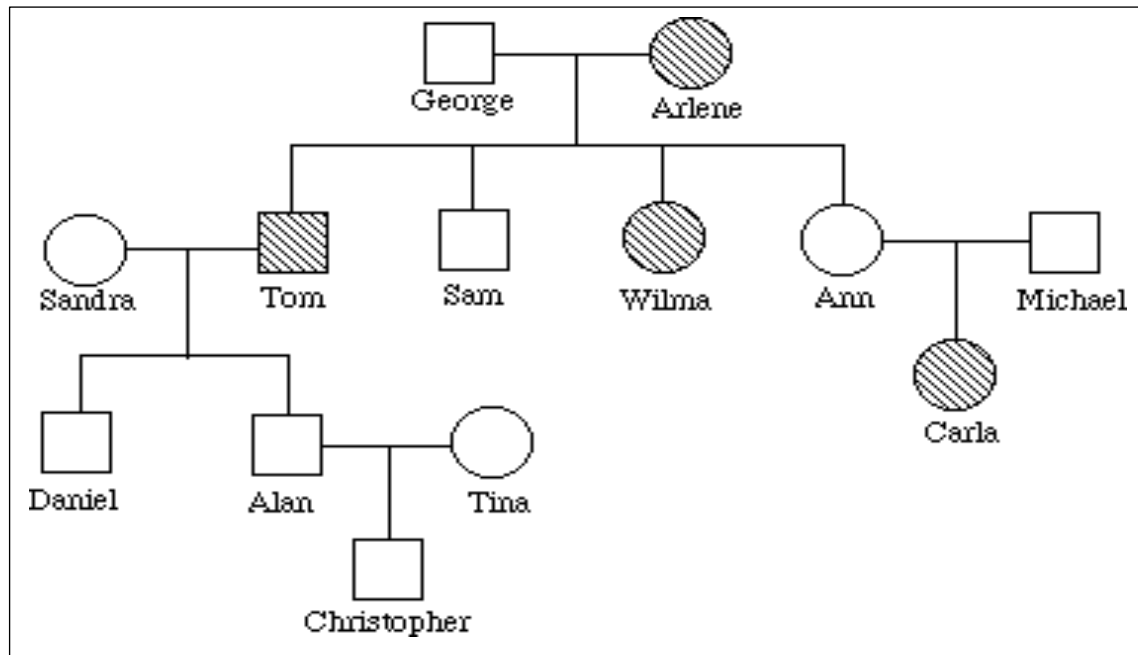
- _____ 8. What is the most likely genotype of individual "A"? (FF, Ff or ff?)
- _____ 9. What is the most likely genotype of individual "C"? (FF, Ff or ff?)



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Question 2, A typical pedigree for a family that carries Falconi anemia.
Note that carriers are **not** indicated with half-colored shapes in this chart.



Analysis Questions.

To answer questions #1-4, use the letter "f" to indicate the recessive Falconi anemia allele, and the letter "F" for the normal allele.

1. What is Arlene's genotype? _____
2. What is George's genotype? _____
3. What are Ann & Michael's genotypes? _____
4. Most likely, Sandra's genotype is _____.



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Question 3 :

Draw your own Pedigree

Condition of Interest: Albinism

*Albinism is a condition in which there is a mutation in one of several possible genes, each of which helps to code for the protein **melanin**. This gene is normally active in cells called melanocytes which are found in the skin and eyes. Albinism involves a significant reduction or absence of the production of melanin, giving affected individuals a lack of normal coloration to their skin/eyes.*

Inheritance Pattern: normal melanin protein is produced by an autosomal dominant allele; albinism results from a lack of melanin and is caused by **an autosomal recessive allele**.

Use the letter **A** or **a** to represent dominant/recessive forms of albinism.

Two normally-pigmented parents have 3 children. The first child (a girl) and their second child (a boy) have normal pigmentation. Their third child (a girl) has albinism. That girl marries a normally pigmented male and they have four children. The first three (two girls and a boy) have normal pigmentation. Their fourth child (a girl) has albinism like her mother.

