

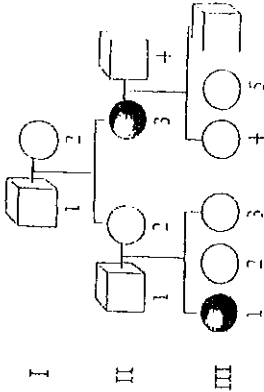
Patterns of Heredity and Human Genetics

Section 12.1 Mendelian Inheritance of Human Traits

your textbook, read about making a pedigree.

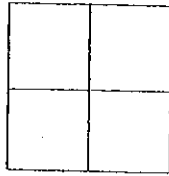
amine the pedigree to the right. Then answer the following questions.

Is the trait being studied in the pedigree recessive or dominant? How do you know?



Are II-1 and II-2 carriers of the trait? How do you know?

What is the probability that II-1 and II-2 will produce an individual with the trait being studied? Draw a Punnett square to show your work.



What is the likely genotype of II-4 for the trait being studied in the pedigree?

your textbook, read about simple recessive heredity and simple dominant heredity.

Match each item in Column A, write the letter of the matching item from Column B.

Column A

Column B

- | | |
|---|--|
| <ul style="list-style-type: none"> 5. Recessive disorder that results from the absence of an enzyme required to break lipids down 6. Lethal genetic disorder caused by a dominant allele 7. Most common genetic disorder among white Americans 8. Recessive disorder that results from the absence of an enzyme that converts one amino acid into another one 9. Tongue curling and Hapsburg lip | <ul style="list-style-type: none"> a. Tay-Sachs disease b. simple dominant traits c. Huntington's disease d. phenylketonuria e. cystic fibrosis |
|---|--|

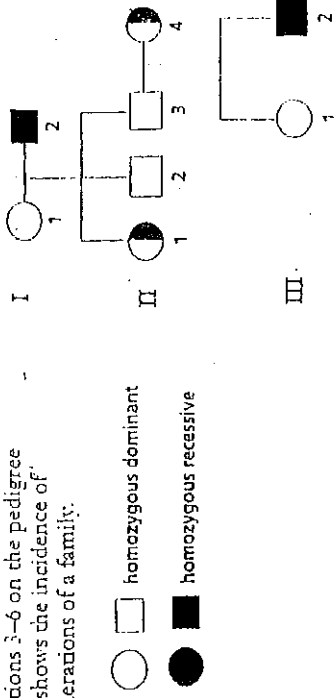
Patterns of Heredity and Human Genetics, continued

Understanding Main Ideas (Part A)

In the space at the left, write the letter of the word or phrase that best completes the statement or answers the question.

1. When roan cattle are mated, 25% of the offspring are red, 50% are roan, and 25% are white. Upon examination, it can be seen that the coat of a roan cow consists of both red and white hairs. This trait is one controlled by
 - a. multiple alleles.
 - b. codominant alleles.
 - c. sex-linked genes.
 - d. polygenic inheritance.
2. If a female fruit fly heterozygous for red eyes ($X^R X^r$) crossed with a white-eyed male ($X^r Y$), what percent of their offspring will have white eyes?
 - a. 0%
 - b. 25%
 - c. 50%
 - d. 75%

Base your answers to questions 3-6 on the pedigree shown at the right, which shows the incidence of hemophilia over three generations of a family.

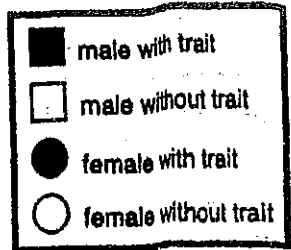


3. What is the relationship between individual I-1 and individual III-2?
 - a. grandfather-granddaughter
 - b. grandmother-grandson
 - c. great aunt-nephew
 - d. mother-son
4. For the trait being followed in the pedigree, individuals II-1 and II-4 can be classified as
 - a. homozygous dominant.
 - b. mutants.
 - c. homozygous recessive.
 - d. carriers.
5. What type of inheritance pattern does the trait represented by the shaded symbols illustrate?
 - a. incomplete dominance
 - b. multiple alleles
 - c. codominance
 - d. sex-linked
6. If individual III-2 marries a person with the same genotype as individual I-1, what is the chance that one of their children will be afflicted with hemophilia?
 - a. 0%
 - b. 25%
 - c. 50%
 - d. 75%

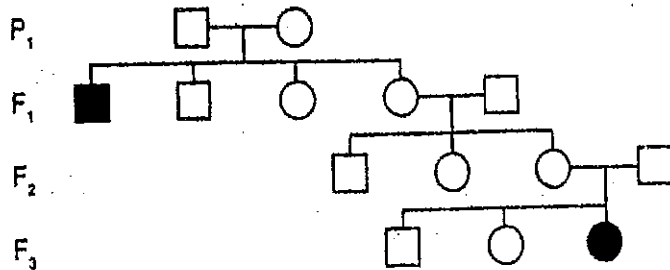
HUMAN PEDIGREES

Name _____

By studying a human pedigree, you can determine whether a trait is dominant or recessive. To interpret the three pedigrees below, use the same key shown at the right. Of course, the individual with the trait could be homozygous dominant or heterozygous dominant.



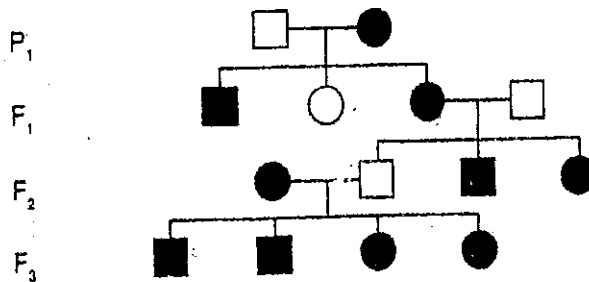
A. The pedigree shows the inheritance of attached earlobes for four generations.



Is the trait for attached earlobes, versus free earlobes, dominant or recessive?

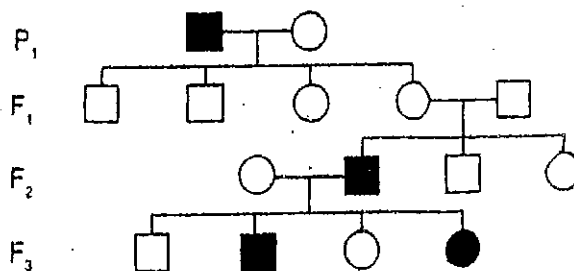
_____ How do you know? _____

B. The pedigree shows the inheritance of tongue rolling.



Is this trait dominant or recessive? _____ Explain. _____

C. This pedigree shows the inheritance of colorblindness, a sex-linked trait.



Is this trait dominant or recessive? _____ Is the mother of the colorblind girl in the F₃ generation colorblind, a carrier, or a person with normal color vision?

_____ Explain. _____