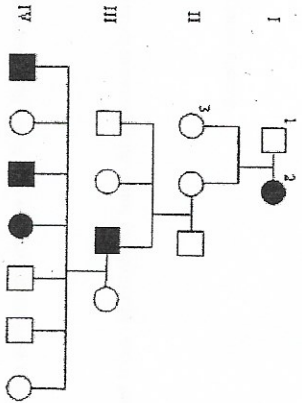


Interpreting a Human Pedigree  
Use the pedigree below to answer 1-5

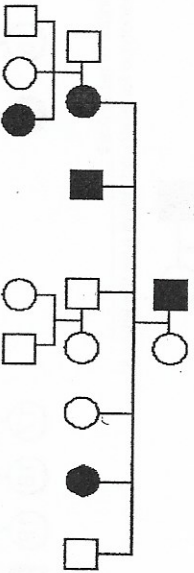
Name \_\_\_\_\_  
Period \_\_\_\_\_ Date \_\_\_\_\_



- In a pedigree, a square represents a male. If it is darkened he has hemophilia; if clear, he had normal blood clotting.
  - How many males are there? \_\_\_\_\_
  - How many males have hemophilia? \_\_\_\_\_
  - How many females are there? \_\_\_\_\_
  - How many females have hemophilia? \_\_\_\_\_
- A marriage is indicated by a horizontal line connecting a circle to a square.
  - How many marriages are there? \_\_\_\_\_
  - How many marriages have hemophilia? \_\_\_\_\_
- A line perpendicular to a marriage line indicates the offspring. If the line ends with either a circle or a square, the couple had only one child. However, if the line is connected to another horizontal line, then several children were produced, each indicated by a short vertical line connected to the horizontal line. The first child born appears to the left and the last born to the right.
  - How many children did the first couple (couple in row I) have? \_\_\_\_\_
  - How many children did the third couple (couple in row III) have? \_\_\_\_\_
- Level I represents the first generation, level II represents the second generation.
  - How many generations are there? \_\_\_\_\_
  - How many members are there in the fourth generation? \_\_\_\_\_

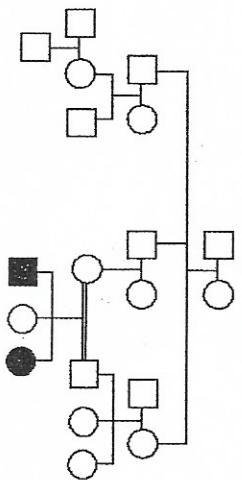
Use the pedigree below to answer 6-12

Shaded individuals have Huntington's Disease



- Write the generation on the pedigree numbers (roman numerals).
- Which members of the family above are afflicted with Huntington's Disease? you either have it or you don't!
- There are no carriers for Huntington's Disease. You either have it or you don't!
- With this in mind, is Huntington's disease caused by a dominant or recessive trait? \_\_\_\_\_
- How many children did I-1 and I-2 have? \_\_\_\_\_
- How many children did II-1 and II-2 have? \_\_\_\_\_
- How many children did II-3 and II-4 have? \_\_\_\_\_
- How many children did III-1 and III-2 have? \_\_\_\_\_
- How many children did III-3 and III-4 have? \_\_\_\_\_
- How many children did III-5 and III-6 have? \_\_\_\_\_
- How many children did IV-1 and IV-2 have? \_\_\_\_\_
- How many children did IV-3 and IV-4 have? \_\_\_\_\_
- How many children did IV-5 and IV-6 have? \_\_\_\_\_
- Write the genotypes of each individual on the pedigree.

Use the Pedigree below to answer 13-18

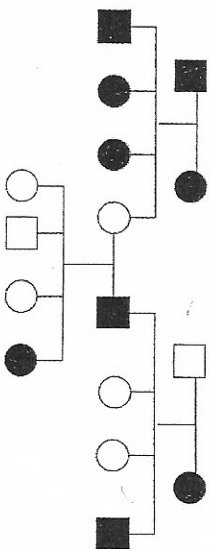


- Write the generation on the pedigree numbers (roman numerals). The pedigree to the above shows the passing on of Hitchhiker's Thumb. Is this trait dominant or recessive? \_\_\_\_\_
- How do you know? \_\_\_\_\_
- How are individuals III-1 and III-2 related? \_\_\_\_\_
- Name 2 individuals that have hitchhiker's thumb. \_\_\_\_\_
- Name 2 individuals that were carriers of hitchhiker's thumb. \_\_\_\_\_
- Write the genotypes for each individual on the pedigree.

Determining Inheritance Patterns

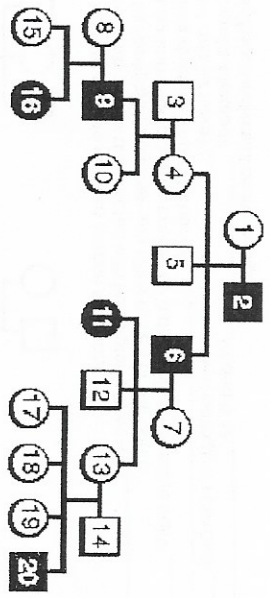
- When working through a pedigree, the first thing you need to do is figure out which characteristic is dominant - the shaded one or the un-shaded one. Then you need to choose a letter (let's use A) and begin assigning genotypes. Remember that recessive individuals are **always** homozygous, so assign their genotypes first. Then go back and look at all of the dominant individuals. For some, you will only be able to determine one allele of the genotype, so just write the one capital allele followed by a question mark (A?).
  - Which characteristic is dominant? \_\_\_\_\_
  - Which characteristic is recessive? \_\_\_\_\_
  - Determine the genotypes of all individuals. You will have three "A?". Write your Genotypes beneath each individual.

Fur Color in Mice

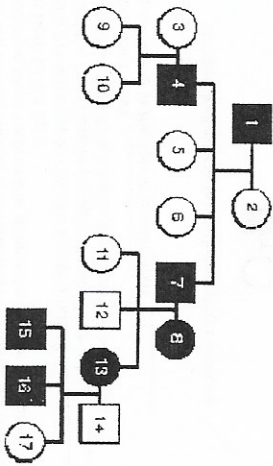


- = white female      ● = black female  
□ = white male      ■ = black male

20. Is the trait dominant or recessive? \_\_\_\_\_  
 Write the genotype for each individual (use the letter A)



21. Is the trait dominant or recessive? \_\_\_\_\_  
 Write the genotype for each individual (use the letter A)



**Making Conclusions**

22. If a child has an autosomal dominant trait, what can you say about the parents?
23. If two parents have an autosomal dominant trait, what can you say about their children?
24. If two parents have an autosomal recessive trait, what can you say about their children?
25. If two parents do not have an autosomal recessive trait, what can you say about their children?
26. Can autosomal recessive traits skip generations?