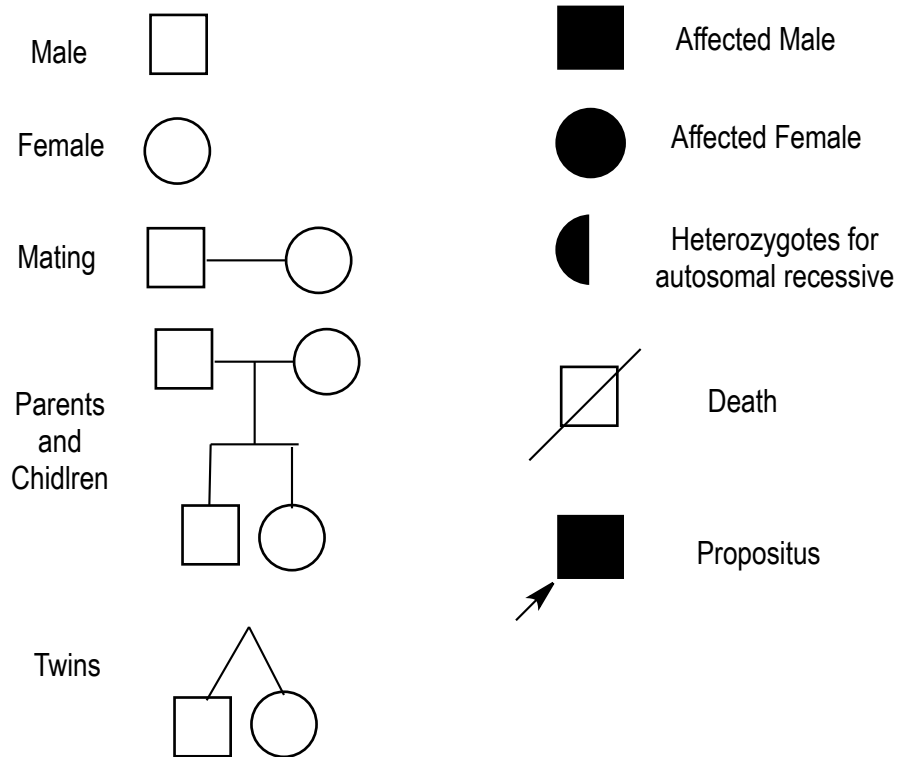


CONCEPT: PEDIGREES

- A **pedigree** is a map of human matings

- A **propositus** is the family member who first comes to the attention of a geneticist
- Pedigrees use many symbols



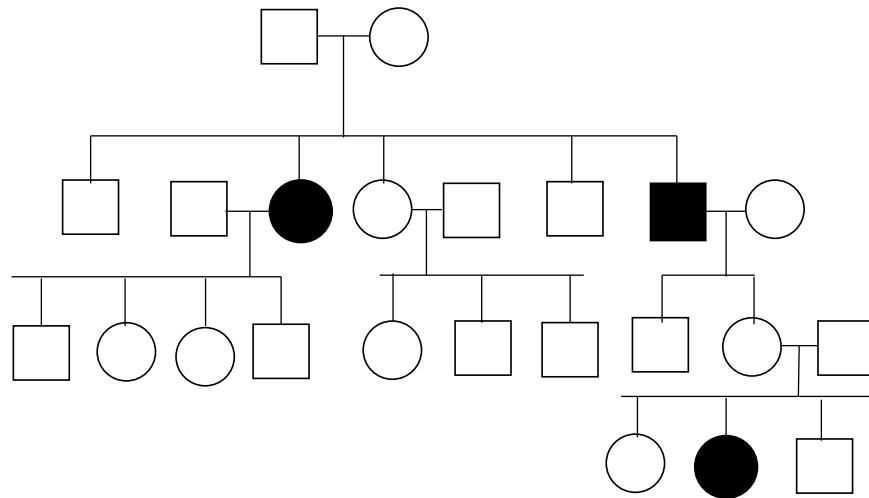
- In Genetics, you'll be given a pedigree and asked to identify the inheritance pattern

Autosomal Inheritance

1. Autosomal Recessive Disorders

- Affected individuals appear in offspring of unaffected parents
- Affected offspring include both males and females
- There are only a few affected offspring

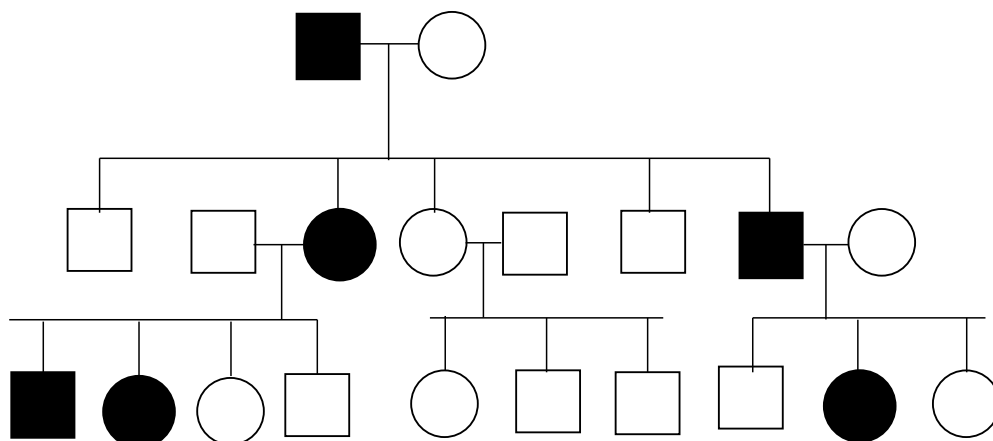
EXAMPLE:



2. Autosomal Dominant Disorders

- Phenotype appears in every generation of pedigree
- Affected parents pass the phenotype to their children
- Are rare, but normal allele is recessive

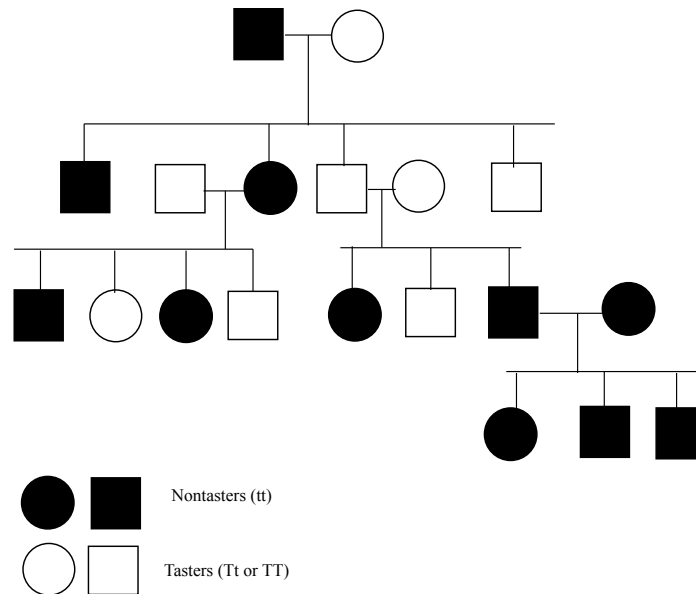
EXAMPLE:



3. Autosomal Polymorphisms

- **Polymorphism** existence of two or more common phenotype of a trait
- Examples include: widow's peak, tasting PTC, attached/free earlobes
- Inherited in standard Mendelian manner

EXAMPLE:

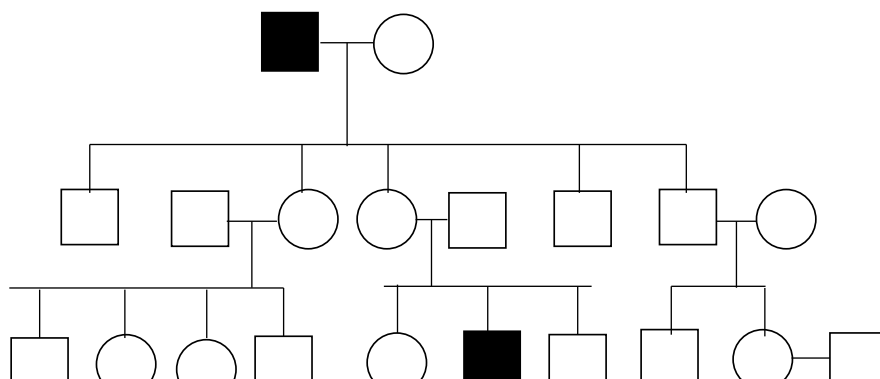


Sex-linked inheritance

4. X-Linked Recessive Disorders

- More males than females are affected
- An affected male parent will not have affected offspring, but all daughters will be carriers
- Sons of affected males will not pass it to their offspring
- Ex: red-green colorblindness

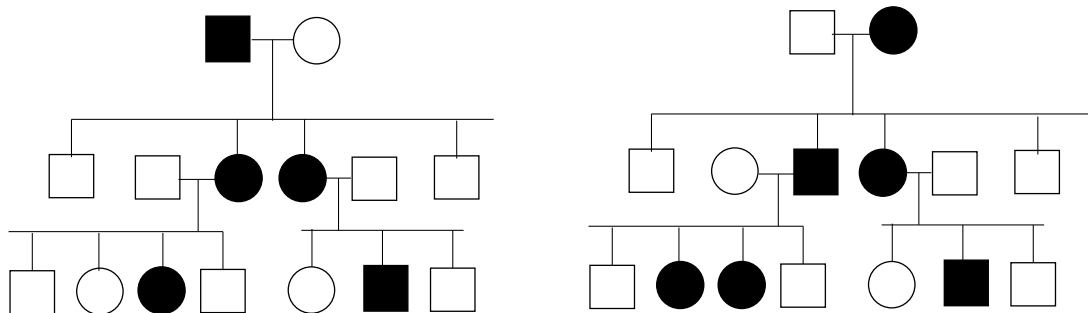
EXAMPLE:



5. X-linked Dominant Disorders

- Affected males pass condition to all daughters, but no sons
- Affected heterozygous females who mate with unaffected males pass condition to $\frac{1}{2}$ of all offspring

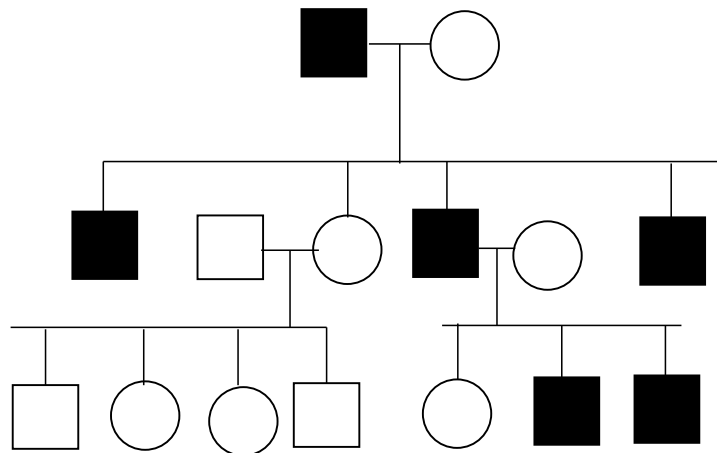
EXAMPLE:



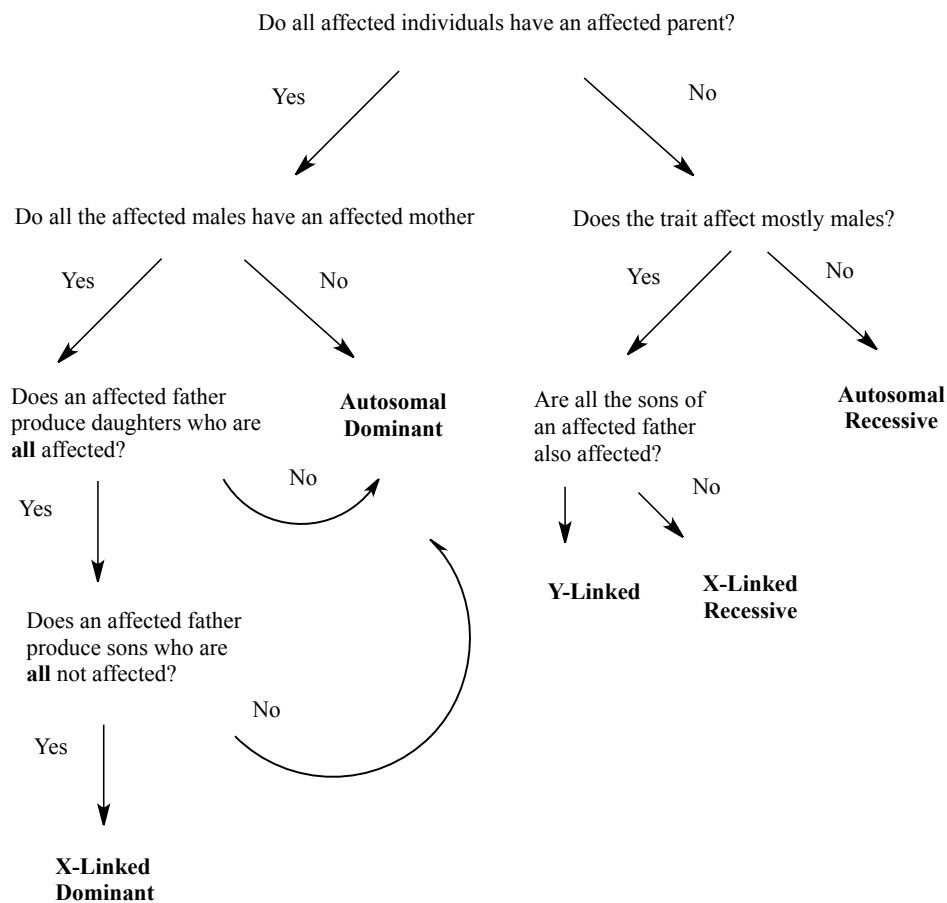
6. Y-linked Disorders

- Only males inherit it
- Very rare

EXAMPLE:

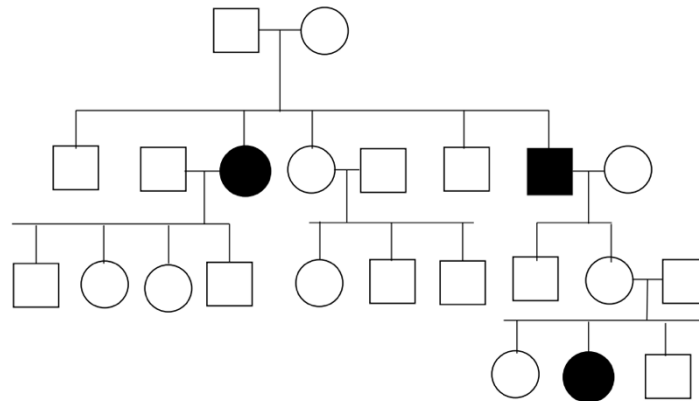


Pedigree Flowchart

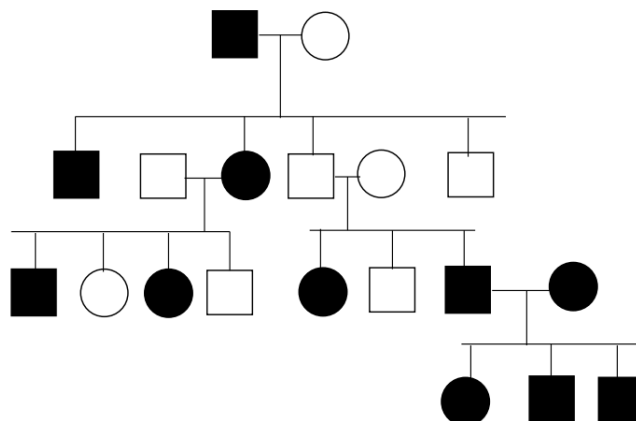


PRACTICE:

1. This pedigree exhibits which of the following inheritance patterns?
 - a. Autosomal Dominant
 - b. Autosomal Recessive
 - c. X-linked Dominant
 - d. Autosomal Polymorphism



2. This pedigree exhibits which of the following inheritance patterns?
- Y-Linked
 - Autosomal Recessive
 - X-linked Dominant
 - Autosomal Polymorphism



3. This pedigree exhibits which of the following inheritance patterns?
- a. Autosomal Dominant
 - b. X-linked Recessive Recessive
 - c. X-linked Dominant
 - d. Autosomal Polymorphism

