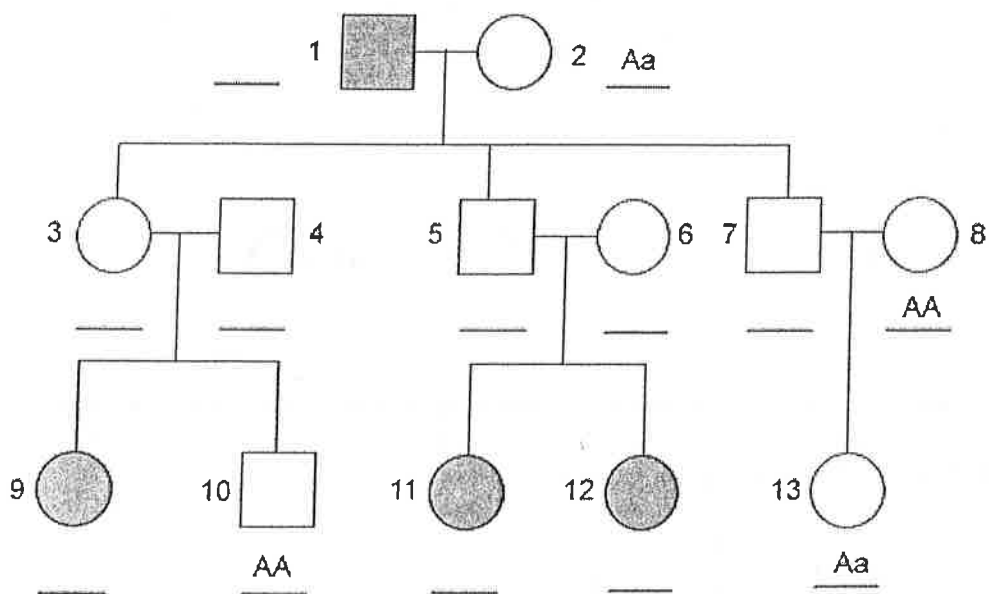


Autosomal Pedigrees Worksheet

Background Information: Pedigrees are used to trace a gene as it is passed down from generation to generation. The squares represent a male and the circles represent a female. In the examples on this handout, the shaded circles and squares will represent having the disorder. Make sure to read each question to find out if a disorder is caused by dominant alleles or recessive alleles. A person can be a carrier of a trait, meaning they have heterozygous alleles.

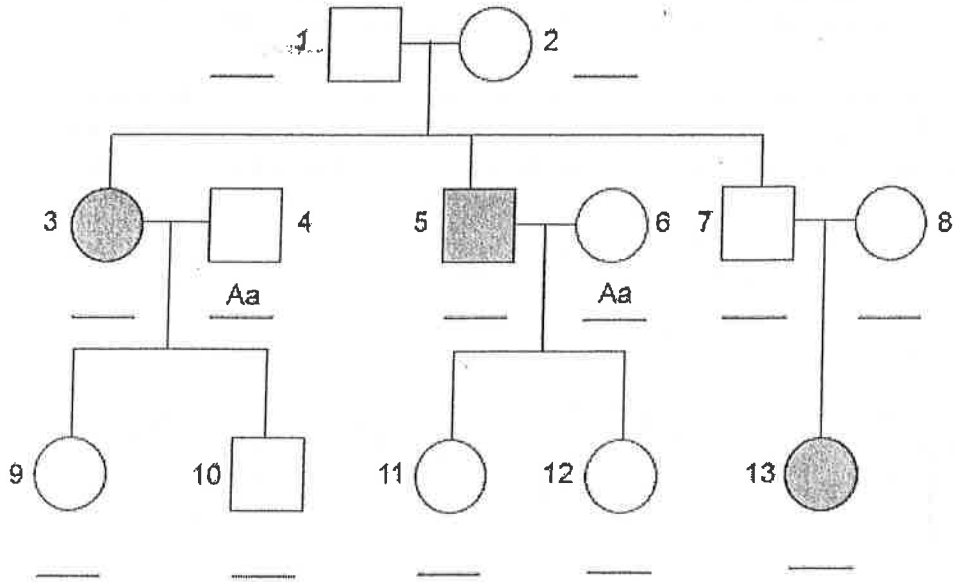
1) Cystic fibrosis is an autosomal recessive disease where mucus develops in the lungs, liver, and the pancreas. Below is an autosomal pedigree tracing the passing of the cystic fibrosis gene through 3 generations. Write in the genotypes on the line next to / below each individual.



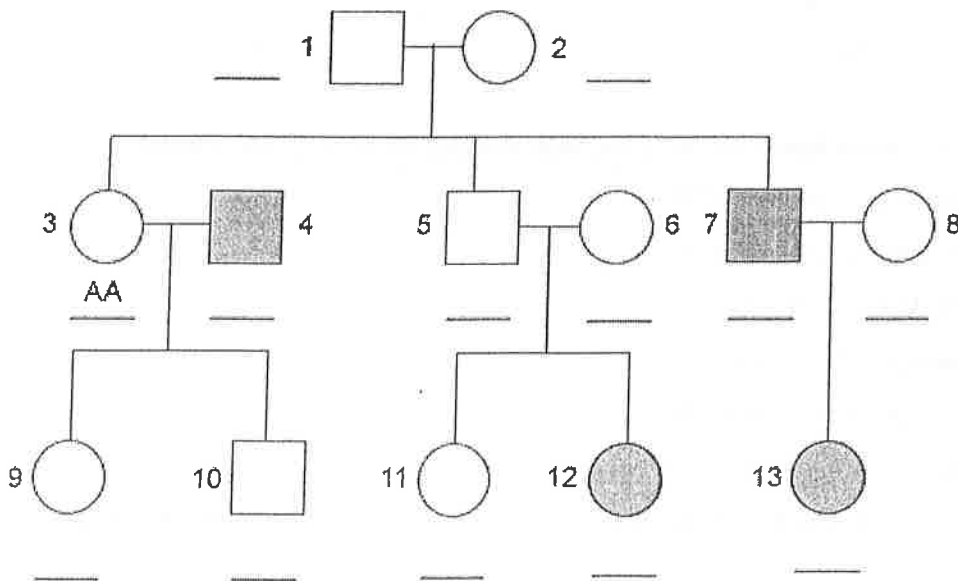
For all phenotype questions below, answers include: normal, carrier, cystic fibrosis.

- 2) What is the phenotype of individual 2? _____
- 3) What is the phenotype of individual 3? _____
- 4) What is the phenotype of individual 5? _____
- 5) What is the phenotype of individual 7? _____
- 6) What is the phenotype of individual 10? _____
- 7) What is the phenotype of individual 11? _____
- 8) Why did individual 9, 11, and 12 get the disorder but their parents did not have the disorder?

9) Albinism (Albino) causes a deficiency of pigmentation in skin, hair, and eyes. Albinism is recessive and autosomal. When a single gene affects many traits, like albinism, it is called pleiotropy. Below is an autosomal pedigree tracing the passing of the albinism gene through 3 generations. Write in the genotypes on the line next to / below each individual.



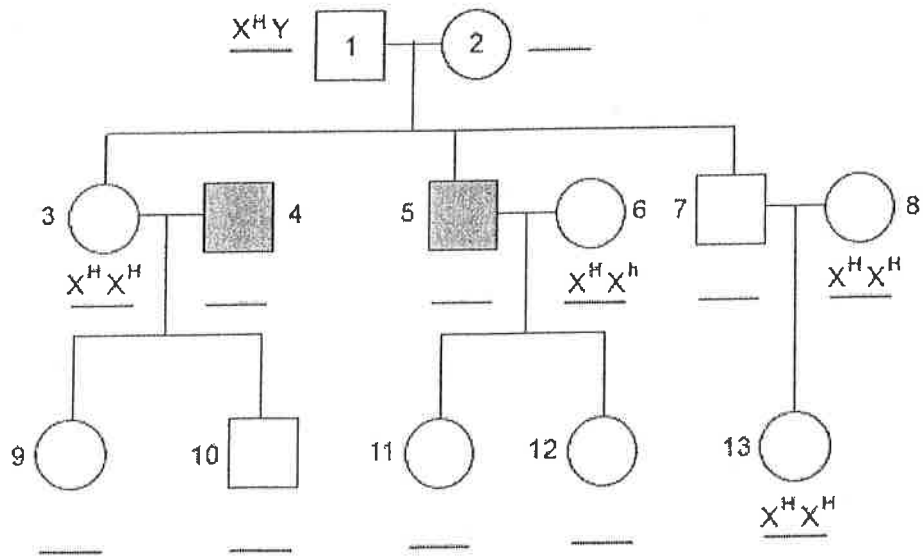
10) Sickle-cell anemia is an autosomal recessive genetic disorder that causes red blood cells to change shape, which can cause the red blood cells to become stuck in blood vessels. Write in the genotypes on the line next to / below each individual.



Sex-Linked Pedigrees Worksheet

Background Information: Pedigrees are used to trace a gene as it is passed down from generation to generation. The squares represent a male and the circles represent a female. In the examples on this handout, the shaded circles and squares will represent having the disorder. Make sure to read each question to find out if a disorder is caused by dominant alleles or recessive alleles. A person **can be** a carrier of a trait, meaning they have heterozygous alleles.

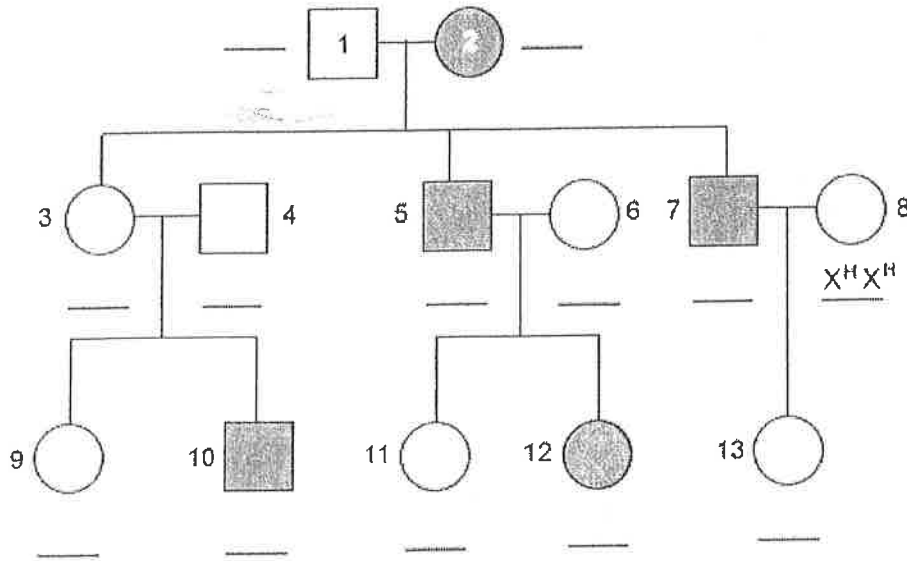
1) Hemophilia is a recessive sex-linked disorder located on the X chromosome where a person's body cannot control blood clotting or coagulation. Write in the genotypes on the line next to / below each individual.



For all phenotype questions, on the first line write: male or female and the second line write: normal, carrier, hemophilia.

- 2) What is the phenotype of individual 2? _____
- 3) What is the phenotype of individual 4? _____
- 4) What is the phenotype of individual 5? _____
- 5) What is the phenotype of individual 7? _____
- 6) What is the phenotype of individual 9? _____
- 7) What is the phenotype of individual 10? _____
- 8) What is the phenotype of individual 11? _____
- 9) What is the phenotype of individual 12? _____

10) Fragile-X syndrome is a recessive sex-linked disorder located on the X chromosome. Below is a pedigree tracing the passing of the fragile-X syndrome gene through 3 generations. Write in the genotypes on the line next to / below each individual.



For all phenotype questions, on the first line write: male or female and the second line write: normal, carrier, fragile-X.

- 11) What is the phenotype of individual 1? _____
- 12) What is the phenotype of individual 4? _____
- 13) What is the phenotype of individual 6? _____

14) Below is a recessive sex-linked pedigree tracing the red-green colorblindness gene located on the X chromosome. Write in the genotypes on the line next to / below each individual.

