# Genetics Practice Problems: Pedigree Tables

Remember the following when working pedigree tables:
- Circles are females and squares are males.
- A shaded circle or square indicates that a person has the trait.

The pedigree seen below is for colorblindness. Shaded individuals are colorblind. The allele for colorblindness is carried on the X chromosome and is recessive. Determine the probable genotype of persons 1 – 15, and then answer the questions below the table.
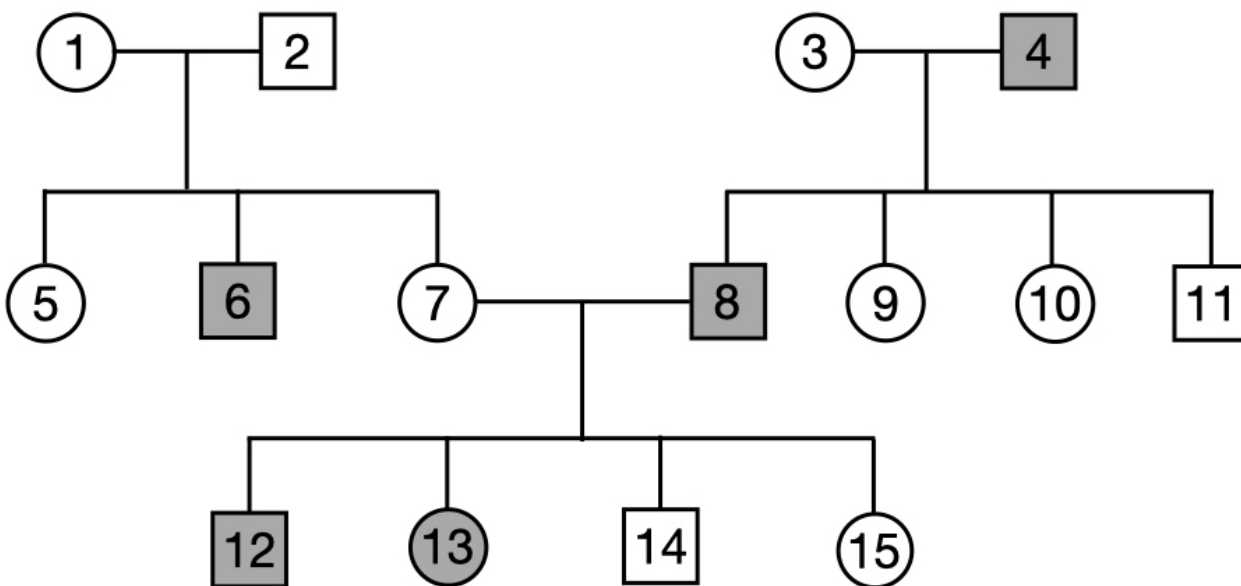
How did you determine the genotype of the mother at 3? _____

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_____

Number 8 was colorblind just like his father. Where did the son at 8 get his allele for colorblindness?

_____

Neither numbers 1 nor 2 were colorblind. How did they have a colorblind son (6)?

_____

What must be the genotypes of the parents of a colorblind daughter? Explain.

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If number 13 marries a normal man, what is the probability that their sons will be colorblind?

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Queen Victoria was the world's most famous carrier of hemophilia. Her son, Leopold, and two carrier daughters, Alice and Beatrice, spread the allele fairly widely through the royal families of Europe, Prussia and Russia. Fortunately, no modern monarchs have inherited the allele. Indicate the probable genotype of each of the people below. Remember, hemophilia is a sex-linked recessive trait. Shaded individuals have the disease.
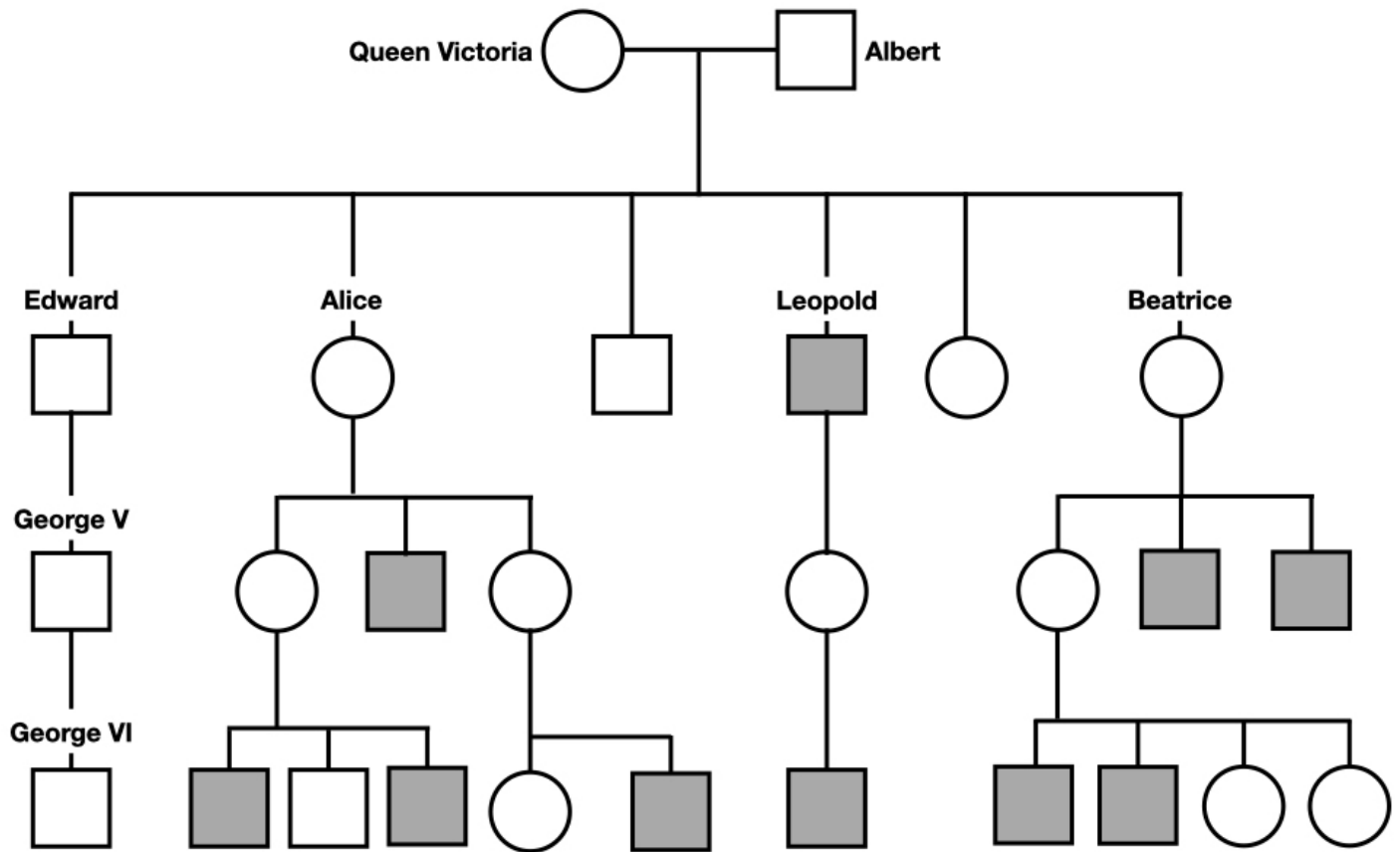
The pedigree table below shows the blood types of three generations of family members. Notice that some of the blood type **phenotypes** have been given to you. What is the genotype of individuals 1 – 6? Give the probable genotype of all other family members.
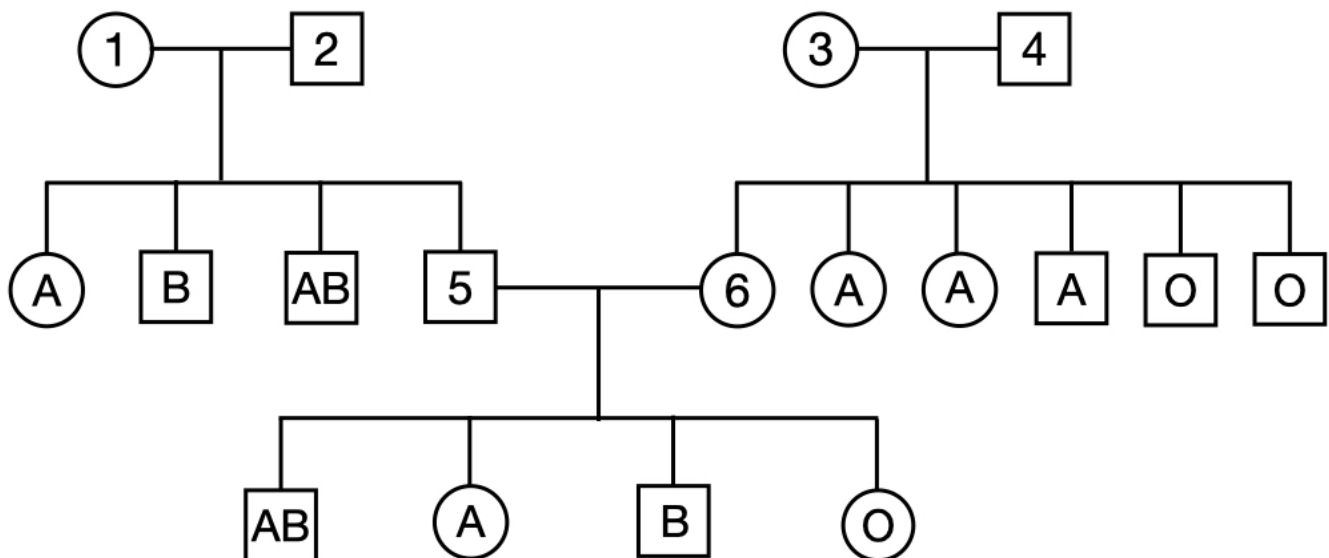
The trait represented by the colored circles and squares below is inherited as a dominant allele. This is not a sex-linked trait. Shaded individuals show the dominant trait. What is the probable genotype of each individual?
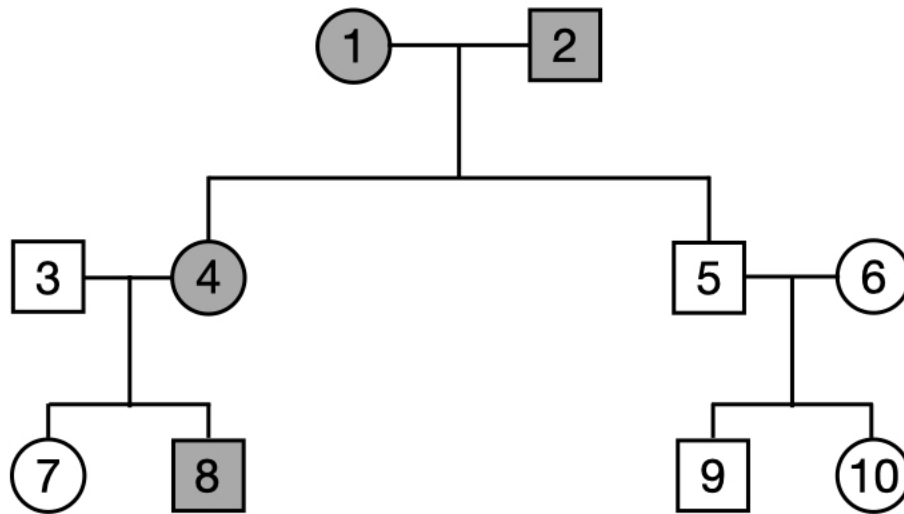

Are there any homozygous dominant individuals in the pedigree above? How do you know?

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_____

What is the probability of the trait appearing in offspring if 7 should marry 9?

_____

_____

What is the probability of the trait appearing in offspring if 8 should marry 10?

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_____

This pedigree table shows the eye color in four generations of a family. Brown eyes are dominant over blue eyes. Eye color is not sex-linked. It is inherited as dominant or recessive alleles on one of the autosomes. Shaded individuals have blue eyes. Determine the probable genotype of each individual below.
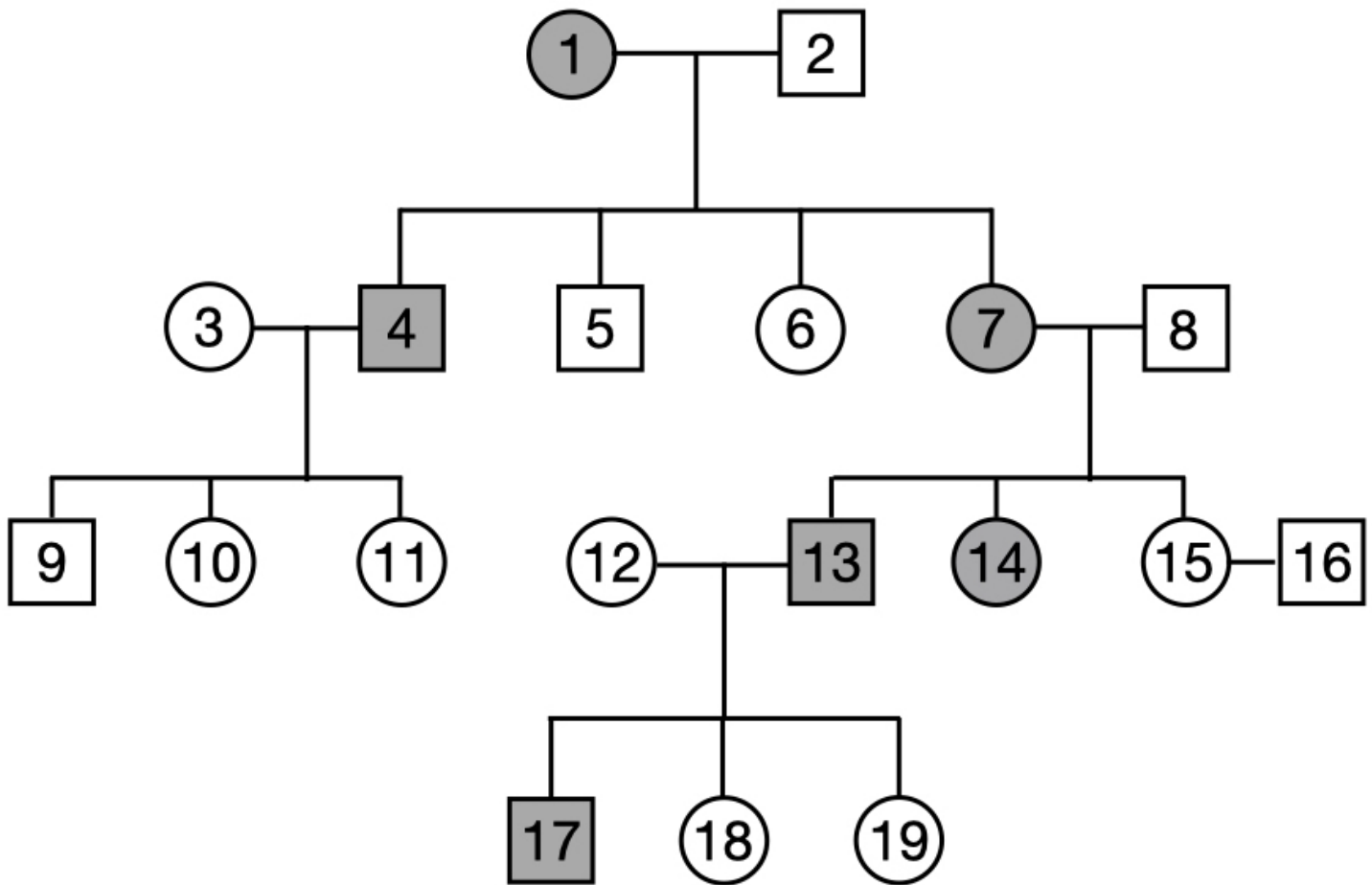
When 1 and 2 married and had children, what genotypes, phenotypes, and probabilities should have been expected in the offspring? Did these expected probabilities agree with what actually occurred in their 4 children?

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When 3 and 4 married and had children, what genotypes, phenotypes, and probabilities should have been expected in the offspring? Did these expected probabilities agree with what actually occurred in their 3 children?

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