

GENETICS: Sex-Linked Traits

In humans, the allele for colorblindness is located on the X chromosome. The allele for normal vision is dominant over the allele for colorblindness. Remember that a man has XY chromosomes and a female has XX chromosomes.

Genotype of a normal vision man:

Genotype of a colorblind man:

Genotype of a normal vision woman:

Genotype of a colorblind woman:

1. If a colorblind woman and a normal-vision man have an offspring, what is the probability the offspring will be colorblind? (Figure out genotypes of mom and dad first, then complete Punnett Square).
2. From #1 above, what is the probability the offspring will be a:
 - a. colorblind son _____%
 - b. normal vision son _____%
 - c. colorblind daughter _____%
 - d. normal-vision daughter _____%
3. A colorblind man marries a woman of normal vision, whose father was colorblind. What is the probability of them having a colorblind daughter?
4. A normal vision woman, who is a carrier (heterozygous) for colorblindness has an offspring with a man of normal vision. What is the probability of having a child with normal vision?