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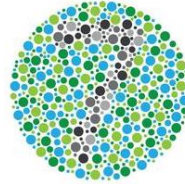
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Sex-Linked Traits Practice Problems

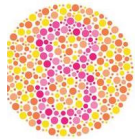


In sex-linked inheritance the genes are carried on the X chromosome as a rule and are usually recessive. For example: A woman with a normal gene on one X chromosome will not be colorblind, but is called a “carrier” for colorblindness. In order to be colorblind, a woman must carry the recessive allele for colorblindness in each of her X chromosomes. A man is either normal or has colorblindness. He cannot be a carrier.

I. Cross a colorblind male with a normal female (whose father was colorblind).



Male genotype: _____ Female genotype: _____



- _____ 1. What is the probability of getting offspring that are carrier females?
- _____ 2. What is the probability of getting color-blind male offspring?
- _____ 3. What is the probability of getting normal female offspring?
- _____ 4. How many possible genotypes are there among the offspring?
- _____ 5. What is the probability of getting color-blind female offspring?
- _____ 6. What is the probability of getting a normal male offspring?
- _____ 7. How many possible phenotypes are there among the offspring?

Genotypes	Phenotypes

II. If a color-blind woman marries a man with normal vision, what kind of children might they expect?

Male genotype: _____ Female genotype: _____

- _____ 1. What is the probability of getting offspring that are carrier females?
- _____ 2. What is the probability of getting color-blind male offspring?
- _____ 3. What is the probability of getting normal female offspring?
- _____ 4. How many possible genotypes are there among the offspring?
- _____ 5. What is the probability of getting color-blind female offspring?
- _____ 6. What is the probability of getting a normal male offspring?
- _____ 7. How many possible phenotypes are there among the offspring?

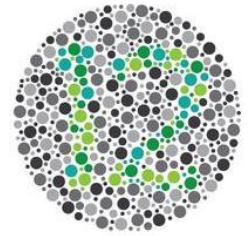


Genotypes	Phenotypes

III. If one of the sons (in the previous cross) marries a heterozygous, normal vision woman, what kids of children might they expect?

Male genotype: _____ Female genotype: _____

Genotypes	Phenotypes



- _____ 1. What is the probability of getting offspring that are carrier females?
- _____ 2. What is the probability of getting color-blind male offspring?
- _____ 3. What is the probability of getting normal female offspring?
- _____ 4. How many possible genotypes are there among the offspring?
- _____ 5. What is the probability of getting color-blind female offspring?
- _____ 6. What is the probability of getting a normal male offspring?
- _____ 7. How many possible phenotypes are there among the offspring?

IV. If a husband and wife have a heterozygous girl for colorblindness, a normal boy, a colorblind girl, and a colorblind boy, what would be the genotypes of the parents?

