

## Sex-Linked Traits

1. Hemophilia is a sex-linked trait.
  - a) Queen Victoria in England was a carrier for hemophilia. Draw a Punnett Square for the cross between her and her husband if her husband did not have hemophilia.  
 $X^H X^H$  = normal female  
 $X^H X^h$  = normal female, a "carrier" of the trait  
 $X^h X^h$  = hemophiliac female  
 $X^H Y$  = normal male  
 $X^h Y$  = hemophiliac male
  - b) What is the probability that the couple will have a female with hemophilia?
  - c) If the couple has a male son, what is the probability that he will have hemophilia?
2. A female can not see the colors red or green.
  - a) What is her genotype?
  - b) This female marries a colorblind. What is the probability of them having a child that can see color?
3. Draw a Punnett square of a cross between a man who can see color and a female who is heterozygous for that trait.
4. Hairy ear rims is a sex-linked trait carried on the Y chromosome. A woman does not have hairy ear rims, and her husband does.
  - a) Draw a Punnett Square for the cross.
  - b) What is the probability of the couple having a child with hairy rims?
  - c) If a woman does not have hairy rims, and her husband does not have hairy ear rims, what is the probability that they will have a child with hairy ear rims?