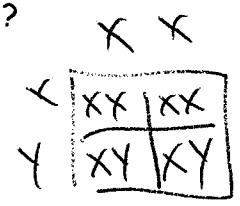
Worksheet 2 – Sex-linked Traits

Directions: Complete the following problems by doing the punnett square for each cross and answering the question asked.

1. Complete a punnett square for the cross between a human female (XX) and a human male (XY). What is the chance that the parents will have a girl?



50/50

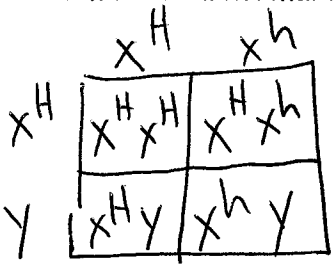
2. If the same parents have four boys, what is the probability their fifth child will be a girl?

50/50

Hemophilia is a recessive sex-linked disease carried on the X chromosome in humans.

3. Write the genotype of a woman who does not have hemophilia. $X^H X^H$
4. Write the genotype of a woman with hemophilia. $X^h X^h$
5. Write the genotype of a woman who is a carrier (heterozygous) for hemophilia. $X^H X^h$
6. Write the genotype of a man who has hemophilia. $X^h Y$
7. Write the genotype of a man who does not have hemophilia. $X^H Y$

8. A woman who is heterozygous for hemophilia marries a normal male. What are the possible phenotypes of their children?

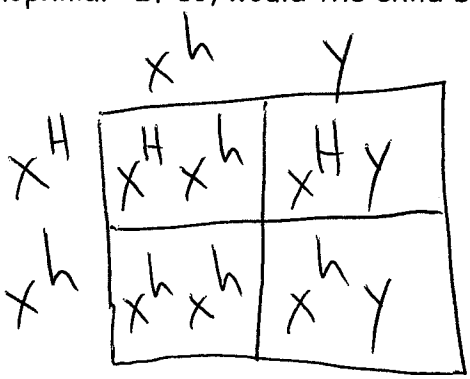


3:1

non hemo

hemo

9. A woman who is a carrier for hemophilia marries a man with hemophilia. Could any of their children have hemophilia? If so, would the child be male or female?



50:50 hemo - non

1 girl hemo

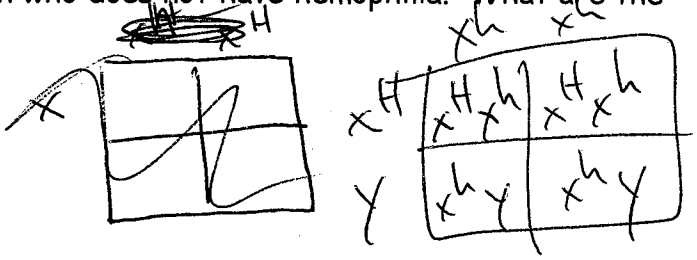
1 boy hemo

Homework 2 – Sex-linked genes

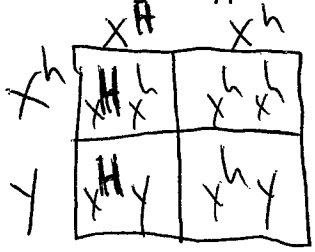
Directions: Complete the following problems by doing the punnett square for each cross and answering the question asked.

1. A woman with hemophilia marries a man who does not have hemophilia. What are the possible phenotypes of their children?

50:50



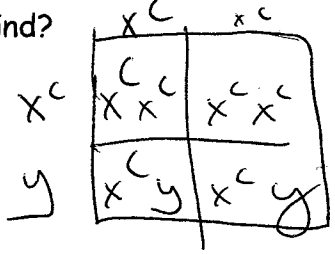
2. A woman without hemophilia marries a man with hemophilia. They have a daughter with hemophilia. What is the genotype of the mother and father?



Colorblindness is a sex-linked recessive trait in humans.

3. Write the genotype of a woman who is not colorblind. $X^C X$
4. Write the genotype of a woman who is colorblind. $X^c X^c$
5. Write the genotype of a woman who is a carrier (heterozygous) for colorblindness. $X^C X^c$
6. Write the genotype of a man who is colorblind. $X^c Y$
7. Write the genotype of a man who is not colorblind. $X^C Y$

8. A colorblind man marries a female who is a carrier for colorblindness. What is the probability that they will have a child who is colorblind?



50%

9. A colorblind male marries a female who is not colorblind (homozygous). What are the possible phenotypes of their children?