Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Genetics: X Linked Genes

\*\*\*\***In fruit flies, eye color is a sex linked trait. Red is dominant to white** \*\*\*\*

1. What are the sexes and eye colors of flies with the following genotypes:

X R X r \_\_\_\_\_\_\_\_\_\_\_\_\_ X R Y \_\_\_\_\_\_\_\_\_\_\_\_ X r X r \_\_\_\_\_\_\_\_\_\_\_\_

X R X R \_\_\_\_\_\_\_\_\_\_\_\_ X r Y \_\_\_\_\_\_\_\_\_\_\_\_

2. What are the genotypes of these flies:

white eyed, male \_\_\_\_\_\_\_\_\_\_\_\_ red eyed female (heterozygous) \_\_\_\_\_\_\_\_

white eyed, female \_\_\_\_\_\_\_\_\_\_\_ red eyed, male \_\_\_\_\_\_\_\_\_\_\_

3. Show the cross of a white eyed female X r X r with a red-eyed male X R Y .

4. Show a cross between a pure red eyed female and a white eyed male.

What are the genotypes of the parents:

\_\_\_\_\_\_\_\_\_\_\_& \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many are:

white eyed, male \_\_\_\_

white eyed, female \_\_\_\_

red eyed, male \_\_\_\_

red eyed, female \_\_\_\_

5. In humans, hemophilia is a sex linked trait. Females can be normal, carriers, or have the disease. Males will either have the disease or not (but they won’t ever be carriers)

Math: Cross a female who is a carrier with a man who is hemophiliac. What if in the cross, 100 males were produced and 200 females.

How many total red-eyed flies would there be? \_\_\_\_\_\_\_\_\_\_\_\_

= female, normal

= female, carrier

= female, hemophiliac

= male, normal

= male, hemophiliac

6. What is the probability that their children will have the disease? \_\_\_\_\_\_\_\_\_\_

7. A woman who has hemophilia marries a normal man. How many of their children will have

hemophilia, and what is their sex?

8.. In cats, the gene for calico (multicolored) cats is co-dominant. Females that receive a B and an R gene have black and orange splotches on white coats. Males can only be black or orange, but never calico.

Here’s what a calico female’s genotype would look like. X B X R

Show the cross of a female calico cat with a black male?

What percentage of the kittens will be black and male? \_\_\_\_\_\_\_\_\_

What percentage of the kittens will be calico and male? \_\_\_\_\_\_\_\_\_

What percentage of the kittens will be calico and female? \_\_\_\_\_\_\_\_\_

9. Show the cross of a female black cat, with a male orange cat.

What percentage of the kittens will be calico and female? \_\_\_\_\_

What color will all the male cats be? \_\_\_\_\_\_