Sex-Linked Review Worksheet

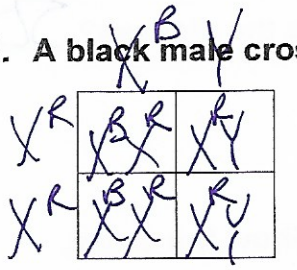
KEY

Calico is a coat color found in cats, which is caused by a sex-linked, co-dominant allele/
B= black, R= orange, BR= calico
The following genotypes are possible:

- **Female cats can be black X^BX^B, orange X^RX^R, or calico X^BX^R**
- **Male cats can be black X^BY or orange X^RY**

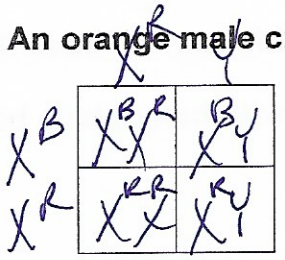
Show each of the crosses below and include the phenotypic rations of the offspring.

1. **A black male crossed with an orange female.**



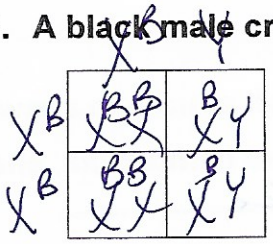
2 orange male
&
2 calico females

2. **An orange male crossed with a calico female.**



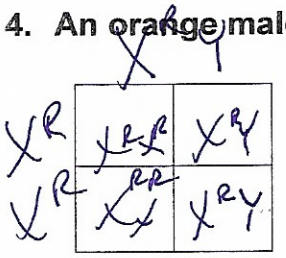
1 calico female
1 orange female
1 black male
1 orange male

3. **A black male crossed with a black female.**



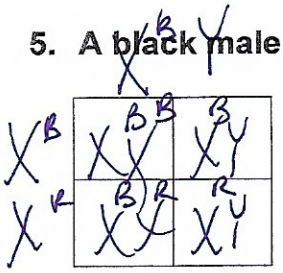
2 Black females
2 Black males

4. **An orange male crossed with an orange female.**



2 orange females
2 orange males

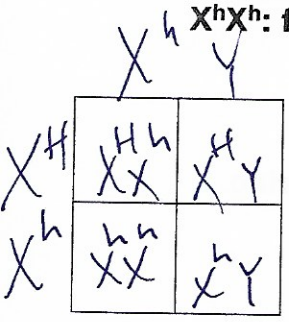
5. **A black male crossed with a calico female.**



one black female
one calico female
one black male
one orange male

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

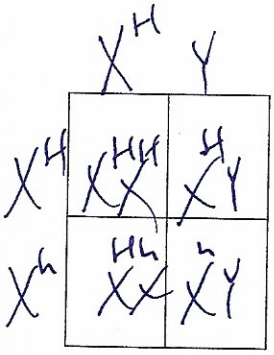
X^HX^H: normal female
X^HX^h: female who is a carrier
X^hX^h: female with hemophilia
X^HY: normal male
X^hY: male with hemophilia



1. Show the cross of a man who has hemophilia with a woman who is a carrier.

$X^hY \times X^HX^h$

What is the probability that their children will have the disease? 50%



2. A woman who is a carrier marries a normal man. Show the cross.

$X^HY \times X^HX^h$

What is the probability that their children will have the disease?

What sex will a child in the family with hemophilia be? Male

3 A woman who has hemophilia marries a normal man. Draw a punnett square to answer.

$X^hX^h \times X^HY$

How many of their children will have hemophilia, and what is their sex? 50%, male