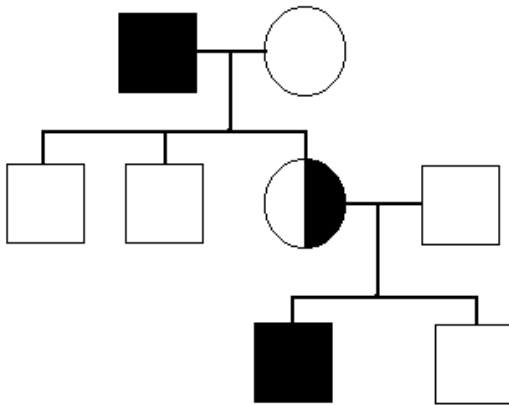


Name: _____ Class _____ Period _____ Date _____

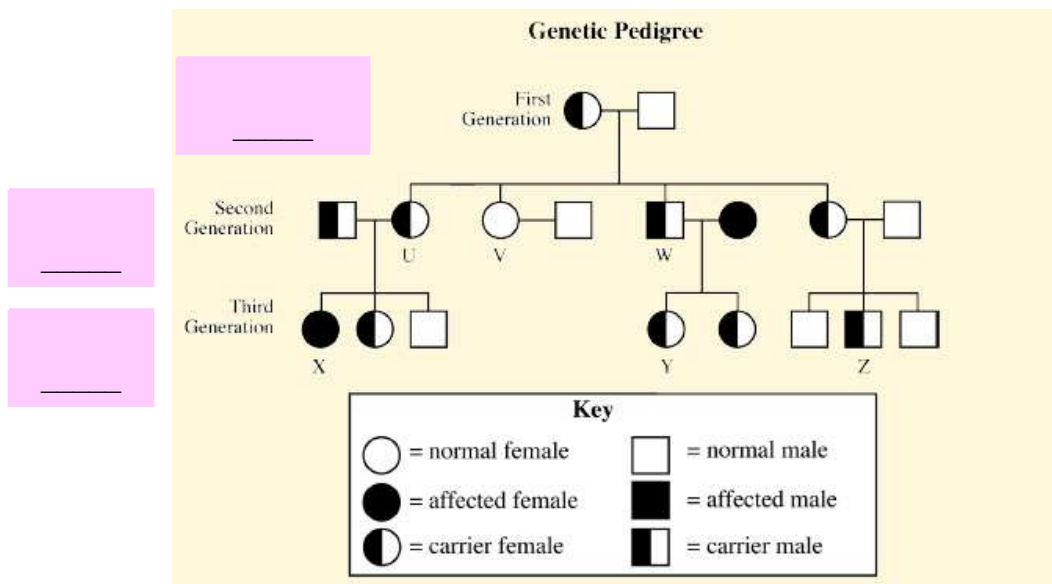
Pedigree Review Worksheet

Study the pedigree and answer the questions below:



1. What do circles represent? _____
2. What do squares represent? _____
3. What do the colored squares represent? _____
4. What does a horizontal line between a circle and square represent?

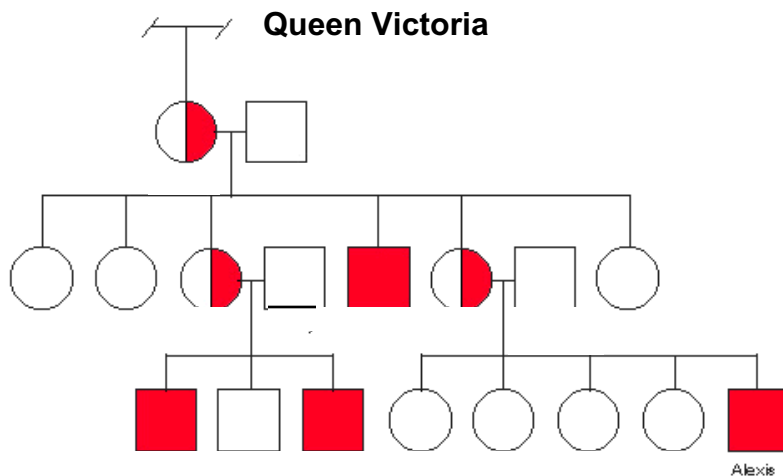
5. What does a vertical line represent? _____
6. What does the half shaded circle represent? _____
7. Is this a dominant/recessive trait or a sex-linked trait?



1. How many generations are shown on the pedigree? _____
2. Which parent in the first generation has sickle cell anemia? _____
3. How many children were born in the 2nd generation? _____
4. How many children in the 2nd generation are carriers for sickle cell anemia? _____
5. How many children in the 3rd generation have sickle cell anemia? _____ How many are carriers? _____
6. Is sickle cell anemia a sex-linked trait? _____ How do you know? _____

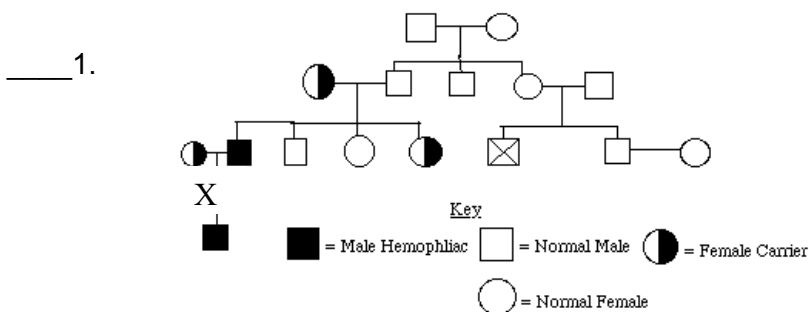
7. Is the gene for sickle cell anemia likely to be dominant or recessive? _____. Explain. _____

Below is part of the pedigree of Queen Victoria of England. This pedigree represents the occurrence of hemophilia in her family. Only part of her family members has been included. Refer to this pedigree to answer the following questions:



1. How many male grandchildren were hemophiliacs? _____
2. How many of the great-grandchildren were hemophiliacs? _____ How many were girls? _____
How many were boys? _____
3. Is it more likely for males or females to get hemophilia? _____ Explain your answer. _____
4. Why were all the carriers in Queen Victoria's family female? _____
5. How are pedigrees helpful in determining family traits? _____

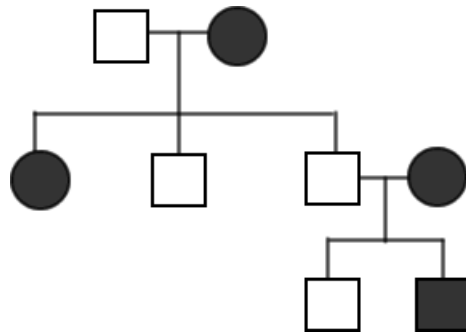
Practice Multiple Choice- Inheritance of Human Traits



Hemophilia is a sex-linked disease. If the spouses (X) represented in this pedigree have a male child, what is the probability that he will be affected with the disease?

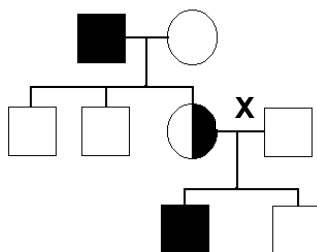
- 0%
 - 50%
 - 25%
 - 100%
- _____ 2. How many affected individuals are shown in this pedigree?
- 4
 - 3
 - 2
 - 1

- ___ 3. Which is most commonly used to study chromosomes?
- ultrasound
 - blood type
 - genetic screening
 - Karyotype
- ___ 4. Which condition is least likely to be passed on genetically?
- autism
 - cancer
 - heart disease
 - sickle cell anemia
- ___ 5. Hemophilia is a result of blood not clotting properly. This condition is caused by a recessive allele carried on the X chromosome. If a mother carries the hemophilia gene on one of her X chromosomes and she has children with a man who exhibits hemophilia, which of the following may result?
- all the daughters will have hemophilia
 - all the sons will carry hemophilia
 - all the daughters will carry or exhibit hemophilia
 - all the sons will have hemophilia



- ___ 6. Albinism results in the body being unable to make a protein needed for production of melanin, which gives up our skin, hair, and eye pigment. According to the pedigree above, what kind of trait is albinism?
- operon
 - recessive
 - dominant
 - sex-linked

___ 7.



Based on this pedigree, how would you describe the mother labeled X?

- affected
 - living
 - carrier
 - normal
- ___ 8. Down Syndrome is caused by the presence of an extra copy of chromosome 21. How would a karyotype identify a person with Down syndrome?
- ID physical characteristics of someone with the disease
 - ID chemical abnormalities in blood
 - ID parents as being carriers before they have children
 - ID presence of an extra copy of chromosome 21

The pedigree shows the inheritance of free earlobes and attached earlobes in five generations of a family. Attached earlobes are caused by a recessive allele (*f*).

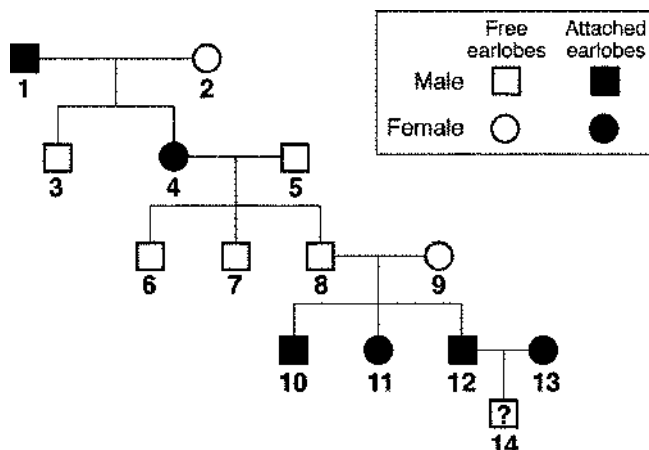
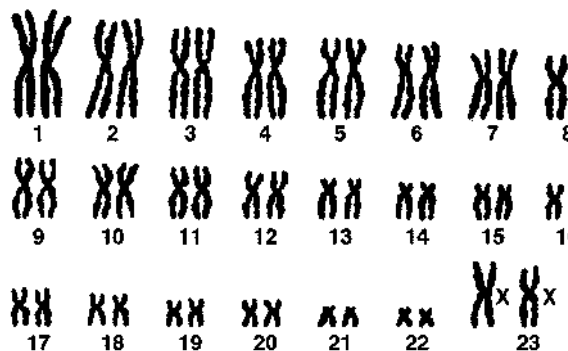


Figure 14–2

6. Is individual 2 in Figure 14–2 homozygous or heterozygous for free earlobes? _____ Explain. _____
7. How many children of individuals 4 and 5 have attached earlobes? _____
8. Can you be certain of the genotype of individual 5 in Figure 14–2? _____ Explain. _____
9. Predict the genotype and phenotype of individual 14 in Figure 14–2. _____
10. Are any of the descendants of individuals 1 and 2 homozygous for free earlobes? _____



1. Which chromosomes are autosomes? _____
2. In the human karyotype, how many chromosomes are shown? _____
3. Identify the sex chromosomes. _____
4. Does the karyotype show the normal number of sex chromosomes? _____ Explain. _____
5. Is this karyotype for a male or female? _____

Complete the punnett square and then answer the questions:

	X	Y
X		
X		

1. What does sex-linked mean? _____
2. If a gene is located on the Y chromosome, could the trait ever be expressed in a female? _____ Why? _____
3. Out of 4 children, how many are expected to be female? _____ male? _____
4. Which sex chromosome do both males and females have? _____
5. Which sex chromosome do only males have? _____