

## CP Biology Study Guide – Test: CH 7 – Complex Inheritance

1. Many animals, including humans, have sex chromosomes called the X and Y chromosome. What are the chromosomes for a male and a female?
2. For a female to express a recessive sex-linked trait, what does she need?
3. Two parents are heterozygous for a recessive genetic disorder, what is the chance that any of their children will inherit the disorder?
4. If a carrier female and a normal male have children, what percentage of the offspring would be expected to have the recessive trait?
5. What is the phenotype of someone heterozygous for a recessive allele that causes a disorder?
6. What factors influence phenotype expression?
7. What are polygenic traits, give examples.
8. One parent is homozygous recessive and one parent is heterozygous for an autosomal recessive disorder. What is the chance that a child of those two parents will have the disorder?
9. An XY male will express a recessive sex-linked trait under what conditions?
10. Suppose a mouse is homozygous for the alleles that produce black fur and homozygous recessive for an epistatic gene that produces albinism. How would the phenotype be affected?
11. A female is born with attached earlobes, which is a recessive phenotype. What genotypes are possible for her, and both her parents?
12. What is the main reason that sex-linked genetic disorders are most often observed in males?
13. What tool is used to match chromosome pairs and look for abnormalities?
14. The gene linkage map here shows the order of genes A, B, and C. What are the distances between the different genes?



15. What is the main difference between the carrier of a sex-linked disorder and the carrier of an autosomal disorder?
16. What is a chart that traces the phenotypes and genotypes within a family called?
17. Color-blindness and hemophilia are two examples of what type of inheritance?
18. A woman who is heterozygous for Type A blood has a child with type A blood. What are the possible genotypes of the father of this child?
19. Parakeets can be many colors, but any one parakeet has only two alleles for color. What kind of inheritance is this?
20. What disorder is trisomy of chromosome 21?
21. In humans, the dominance relationship between the A and B alleles of the ABO blood group gene is an example of what kind of inheritance?
22. What are the phenotypes and genotypes of the different human blood types?
23. The gene for colors in cows has an allele for red and an allele for white. If a cow has both red hairs and white hairs, what is the inheritance pattern?
24. Red-green color blindness is X-linked in humans. If a boy is red-green color blind, and both his parents have normal color vision, which of the boy's grandparents is most likely to be red-green color blind?
25. A couple has a female child with Tay Sachs disease, and three unaffected children. Neither parent nor any of the four biological grandparents of the affected child has had this disease. How is Tay Sachs inherited?
26. The pedigree to the right is most likely the result of what type of inheritance?
27. How can you tell if an individual in a pedigree has the trait?

28. A plant that is homozygous for red flowers is crossed with a plant that is homozygous for yellow flowers. All of the offspring are red and yellow spotted. What type of inheritance is this?
29. Genes that are located on the X chromosome are called what?
30. Hair color, skin color, and height are all what type of traits?
31. Identical twins who are raised apart can have differences that last a lifetime. What is this evidence of?
32. What is it called when genes on the same chromosome tend to be inherited together?
33. What did Thomas Morgan study when he made his discoveries?
34. What determines if genes are inherited together?

***Explain and give examples of each of the following.***

incomplete dominance

co-dominance

multiple alleles

sex-linked

polygenic

Epistasis

***Explain the inheritance patterns and relationships of the following pedigree.***

