

Chapter 6 & 7 Genetics Study Guide

Vocabulary Matching:

- | | |
|---|--------------------|
| ___ 1. Observed characteristic of an individual | a. pedigree |
| ___ 2. Offspring with 2 different alleles for a trait | b. heterozygous |
| ___ 3. Variations or alternate forms of a gene | c. Ff |
| ___ 4. Genotype for an individual that is homozygous dominant | d. Punnett square |
| ___ 5. Allele that masks or covers up the expression of the other | e. recessive |
| ___ 6. Tool used to show probable genotypes of the offspring | f. gametes |
| ___ 7. Genotype of an individual that is hybrid or heterozygous | g. sex chromosomes |
| ___ 8. Gene located on an X chromosome | h. phenotype |
| ___ 9. Allele that is only expressed when there are two present | i. meiosis |
| ___ 10. A graphic representation of an individual's family tree | J. dominant |
| ___ 11. Passing on traits from parents to offspring | k. BB |
| ___ 12. 23 rd pair of chromosomes | l. homozygous |
| ___ 13. Produced by each parent and shown along the sides of a Punnett square | m. sex-linked |
| ___ 14. Cell division that produces gametes | n. alleles |
| | o. heredity |

15. The gamete that contains genes contributed only by the mother is.....

- Sperm Egg Zygote Dominant

16. A dog's phenotype can be determined by.....

- | | |
|------------------------------|--|
| Looking at the dog's parents | Examining the dog's chromosomes |
| Looking at the dog | Mating the dog and examining the offspring |

17. In guinea pigs black fur (B) is dominant to white fur (b). Using a Punnett square, cross a homozygous black male with a homozygous white female.

Assign symbols: _____

Cross: ___ X ___ Punnett square:



18. What percentage of the offspring will be hybrid or heterozygous? _____

19. What percentage of the offspring will be black? _____, white _____?

20. Cross two of the offspring produced in question #17.

Cross: ___ X ___ Punnett square:



21. What percentage of the offspring will be BB? _____, Bb? _____, bb? _____

22. What percentage of the offspring will be black? _____, white? _____

23. In chickens, rose comb (R) is dominant to single comb (r). A homozygous rose-combed rooster is mated with a single-combed hen. All of the chicks in the F1 generation were kept together as a group for several years. They were allowed to mate only within their own group. **What is the expected phenotype of the F2 chicks?**

Assign symbols: _____

Cross: ____ X ____

Punnett square:

24. Colorblindness is a recessive sex-linked disease. Using a Punnett square, show the cross between a female carrier and a colorblind male. (Use X^C and X^c and Y)

Assign symbols: _____

Cross: ____ X ____

Punnett square:

25. What percentage of the offspring will be colorblind? ____ carriers? ____ normal? ____

26. A couple has two children, both of whom are girls. **What is the chance that the parents' next child will be a girl?** _____

27. A female guinea pig homozygous dominant for black fur is mated to a male homozygous for white fur color. **In a litter of eight offspring, how many will be black?** _____

28. A white mouse whose parents are both white produces only brown offspring when mated with a brown mouse. **The white mouse is most probably**

homozygous recessive

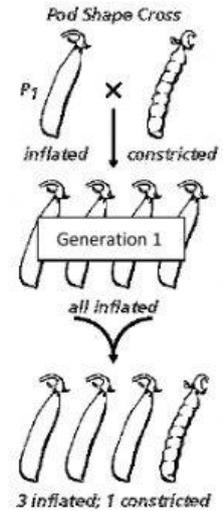
heterozygous

homozygous dominant

haploid

29. According to Figure on the right, what are the 2 phenotypes? _____

38. Look at the Parents (P1) and their offspring (generation 1) from those results,
The constricted pod shape must be
 dominant segregated recessive hybrid

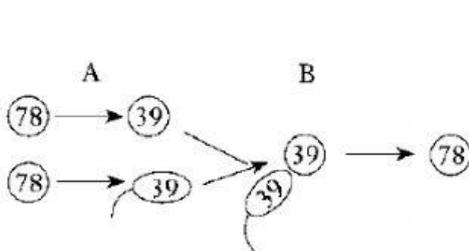


30. According to your answer to #38. I= _____ i= _____

31. What is the genotype of generation 1? _____

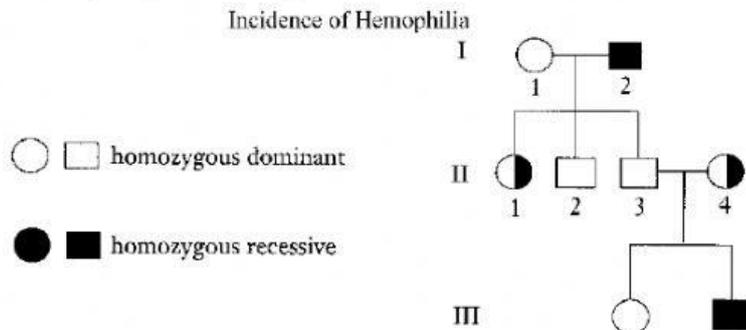
32. What is the phenotype of generation 1? _____

The following diagram below shows the chromosome number found in dogs.
 Use the diagram to answer the following questions:



33. What kind of cell is 39? _____
 34. What does the number mean? _____
 35. What process is occurring at A? _____
 36. At B the male and female gametes are uniting, what is this process called? _____
 37. What is the diploid number for a dog? _____
 38. What is the haploid number for a dog? _____

Refer to the SEX-LINKED pedigree. Hemophilia is a recessive sex-linked disorder.



39. Using the symbol X^H and X^h, write the genotypes for each individual above the circle or square. If you cannot determine if the individual is homozygous or heterozygous for the trait, write both.

40. If individual III-2 marries a person with the same genotype as individual I-1, what is the chance that one of their children will be afflicted with hemophilia?



41. For the trait being followed in the pedigree, individuals II-1 and II-4 in Figure 12-1 can be classified as...
 homozygous dominant mutants homozygous recessive carriers

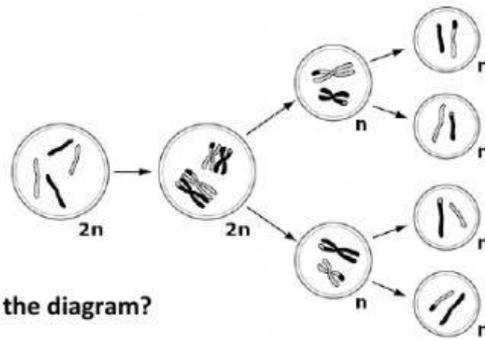
42. A woman carries only one allele for a recessive sex-linked genetic disease. A man does not have the recessive allele for that genetic disease.

Woman's genotype _____
 Man's genotype _____

Fill in the Punnett square and then determine which of these is true of their children?

- a. All of their sons will have the disease
- b. All of their children will have the disease.
- c. None of their children will have the disease.
- d. None of their daughters will have the disease.

Meiosis



43. In the diagram on the right, circle the daughter cells.

44. Which statement best describes the outcome of the process in the diagram?

- a. four identical daughter cells
- b. four sex cells, two male and two female
- c. four daughter cells, each with a different number of chromosomes
- d. four sex cells, each with a different combination of genetic material

45. In pea plants, the allele for round seeds (R) is dominant to the allele for wrinkled seeds (r). A gardener has two sets of parent plants, Set 1 and Set 2. The parents in set 1 are heterozygous for this trait. In set 2, one parent is homozygous dominant and the other is homozygous recessive. The gardener wants to produce only round seeds. Which set should he use and why?

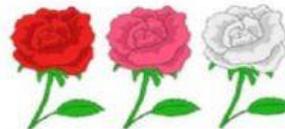
Set 1

Set 2

46. In a species of flower, the petals can be red, pink or white.

This inheritance pattern is.....

- Incomplete dominance
- codominance
- simple dominant/recessive
- sex-linked



47. According to the diagram, Roan cows display

- Mendelian inheritance
- Codominance
- Incomplete dominance
- Sex-linked alleles

