

EOC Review Part 5
Patterns of Inheritance (Genetics)

What does it mean when a trait is dominant?

What does it mean when a trait is recessive?

What does it mean if a trait is codominant?

What does it mean if a trait is incompletely dominant?

What does “polygenic” mean? (and give some examples)

What are the sex chromosomes in males? In Females?

In the Punnett square to the right, **T** = tall and **t** = short. Give the genotype of the parents.

	T	t
T	TT	Tt
t	Tt	tt

What are all the possible genotypes and phenotypes of the offspring?

What is the genotypic ratio of the possible offspring?

What is the phenotypic ratio of the possible offspring?

What environmental factors might affect the expression of these for height?

In the Punnett square to the right, do a cross of a trait showing intermediate characteristics: cross a pure-breeding red flower (RR) with a pure breeding white flower (WW) and give the genotypes and phenotypes of possible offspring

If a woman with type A blood has a child with a man with type B blood and their first child has type O blood, give the genotypes of the woman and the man and show the cross. (Remember, alleles for blood are **I^A**, **I^B**, and **i**)

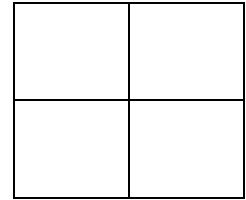
What are the odds that they will have a child with type A blood?

What are the odds that they will have a child with type AB blood?

A blood test is done to see if one of three men is the father of a child. The child has type O blood, the mother has type A blood. Man #1 has type AB blood, Man #2 has type A blood, Man #3 has type O blood. Are there any men that can be ruled out as the father? Explain.

Hemophilia and colorblindness are examples of sex-linked disorders. What chromosome are these genes found on?

Cross a female who is a carrier for hemophilia and a normal male. What are the odds that they will have a child with hemophilia?

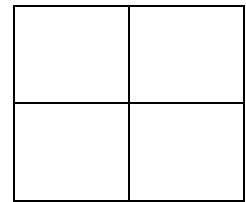


What are the odds that they will have a daughter with hemophilia?

What are the odds that they will have a daughter who is a carrier for hemophilia?

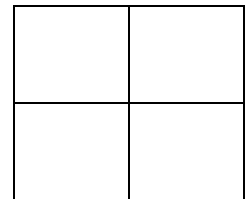
Why are males more likely to have an X-linked disorder? Who (mother/father) is likely to give them the bad gene?

Describe the test cross that a farmer would use to determine the genotype of an animal that shows a dominant trait. Use a Punnett square and the letters **A** and **a** to explain your answer.

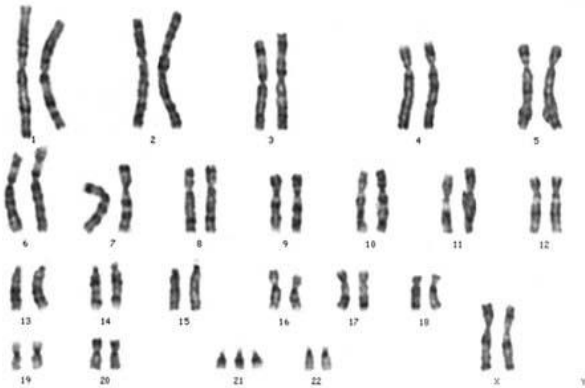


Explain Mendel's Law of Segregation.

Explain Mendel's Law of Independent Assortment.



How does meiosis lead to segregation and independent assortment?



What is the gender of the person whose karyotype is shown to the left?

What is the disorder that this person has?

What is the inheritance pattern (autosomal v. sex-linked, dominant v. recessive) shown by this pedigree to the right? How do you know?

Using the letters "A" and "a," what is the genotype of person II4?

What is the genotype of person I3?

