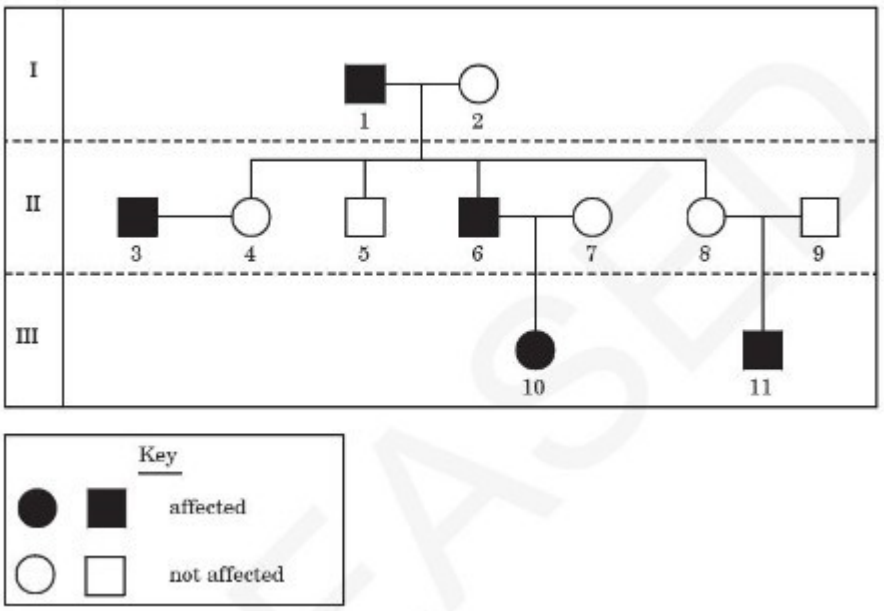
SC.912.L.16.1 – Genetics – Example 5 Answer

This diagram shows a pedigree for a recessive genetic disorder.



What is the genotype of individual 6?

A. X^HX^H

B. X^HX^h

C. X^HY

D. X^hY

Answer

D. **X^hY**

Individual 6 is the offspring of individuals 1 and 2. Males are always represented with squares. If the disorder is recessive, the Father's genotype must be **X^hY** for the disorder to be expressed. Because the condition is expressed in the son (individual 6), we can infer that the mother's genotype is heterozygous (X^HX^h) because she must have contributed an X chromosome with the allele for the gene to her son, but did not have the condition herself. Individual 6 has the genotype **X^hY.**