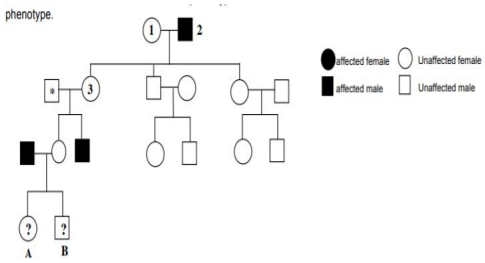
Name : Date :

Pedigree Analysis Worksheet

You are analyzing the following human pedigree.
Assume that the individual marked with an asterisk (*) does not carry any allele associated with the affected phenotype and that no other mutation spontaneously occurs. Also assume complete penetrance. Use "R or XR" for the allele associated with the dominant phenotype, "r or Xr" for the allele associated with the recessive phenotype.



1. What is the most likely mode of inheritance of this disease? Choose from: autosomal dominant, autosomal recessive, X-linked dominant, X-linked recessive.
2. List all possible genotypes of the following individuals in the pedigree.

Individual	Genotype
#1	
#3	

3. What is the probability of Individual A being affected?

Answer key :

1. X linked recessive
2. Genotype :
#1 : (X)R (X)R or (X)R (X)r
#3 : (X)R (X)r

3. The father of individual A has the genotype (X)r (Y). Individual A is a female so she will inherit the Xr from her father. The probability that individual A's mother is a carrier (XR Xr) is ½ since female #3 is a carrier (#3 has an affected son). If individual A's mother is a carrier (XR Xr) then the probability that individual A will inherit Xr from her mother is ½.
The combined probability that that individual A will inherit a Xr is ½ x ½, or ¼.