Biology Genetics Set #2

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| *Disorder* | *Recessive or Dominant?* | *Autosomal or Sex-linked?* |
| Huntington's Disease | 1. Dominant | 1. Autosomal |
| Muscular Dystrophy | 1. recessive | 1. Autosomal |
| PKU | 1. recessive | 1. Autosomal |
| Hemophilia | 1. recessive | 1. Sex-linked |
| Sickle Cell Anemia | 1. recessive | 1. Autosomal |
| Cystic Fibrosis | 1. recessive | 1. Autosomal |
| Tay Sachs | 1. recessive | 1. Autosomal |
| Colorblindness | 1. recessive | 1. Sex-linked |

1. Which disorder affects a membrane protein causing the individual to produce excess mucus in the lungs? Cystic Fibrosis
2. Which disorder affects hemoglobin resulting in misshapen red blood cells? Sickle Cell
3. Which disorder affects an enzyme that breaks down an amino acid but can be controlled by diet? PKU
4. Which disorder doesn't present symptoms until age 40? Huntington’s
5. One of the parents of a child has PKU, which is caused by recessive alleles. The other parent does not have any PKU alleles.
   1. What is the genotype of the parent with PKU? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rr
   2. What is the genotype of the parent without PKU? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ RR
   3. What are the chances that they will have a child with PKU? \_\_\_\_\_\_\_\_\_\_\_ 0%
6. A normal woman whose father was a hemophiliac marries a normal man.
   1. What percent of male and female children would be hemophiliacs? 25%
   2. What percent normal children? 75%
   3. Would any be carriers? What %? 25%

XH Xh

XH XH XH  XH Xh

Y XH Y Xh Y

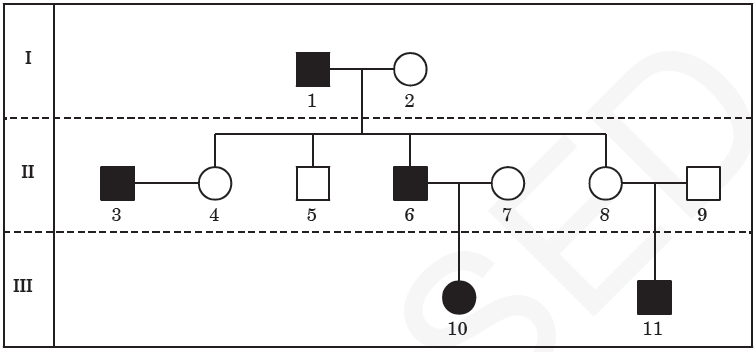
1. Can a color blind female have a son that has normal vision? Show the cross to indicate whether or not she can. NO

Xr  Xr

XR

Y Xr  Y Xr  Y

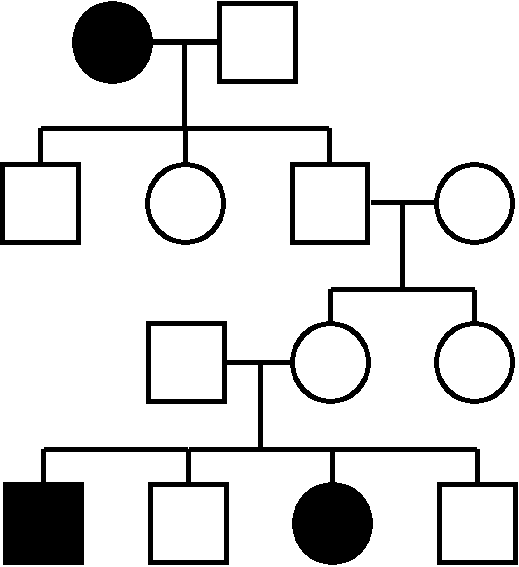
1. Below is a Pedigree, showing a *sex-linked recessive disorder*.



1. What is the genotype of individual #6? Xr  Y
2. What is the genotype of individual #2 XR Xr
3. What are the two sex-linked recessive traits you need to know?

Fathers pass trait to daughters that are carriers. Mothers pass to sons.

The pedigree shows the inheritance pattern of *cystic fibrosis*.

1.  Is this disorder recessive or dominant?

1.

2.

I.

Recessive

1. Is this disorder sex-linked or autosomal? How can you tell?

II.

1.

Autosomal

1.

1. What is the genotype of individual II-1?

III.

Rr

1.

1. What is the genotype of individual IV-1?

IV.

rr