Name:
Review Sheet for Genetics Test

Modes of Inheritance:

Autosomal Dominant-

Autosomal Recessive-

Sex-linked Recessive-

Sex-linked Dominant-

Mendelian Disorders: **Define** the following disorders and **identify the mode of inheritance** in each:

- Cystic Fibrosis-
  Mode of Inheritance:

- Polydactyly
  Mode of inheritance:

- Phenylketonuria-
  Mode of inheritance:

- Achondroplasia:
  Mode of inheritance:

- Sickle cell anemia-
  Mode of inheritance:

- Tay Sach's-
  Mode of inheritance:

- Huntington's Disease-
  Mode of inheritance:

- Familial Hypercholesterolemia-
  Mode of inheritance:

- Hypertrophic Cardiomyopathy-
  Mode of inheritance:

- Maple Syrup Urine Disease:
  Mode of inheritance:

Sex Linkage

Name the scientist who discovered this type of inheritance:

_____

Identify 3 sex-linked disorders and describe:

1.

2.

3.

Why are sex-linked disorders more common in males?

_____

What was the name of the disorder Lorenzo Odone suffered from?

_____

How is this disease inherited? (mode of inheritance)

_____

Sex Linkage Practice

In fruit flies, eye color is a sex-linked trait. Red is dominant to white.

What are the sexes and eye colors of flies with the following genotypes:

XRXr_____ XRY_____

XRXR_____ XrY _____

Show the cross of a white eyed female with a red eyed male:

Genotypes _____x_____

How many are:
White eyed male _____
White eyed female _____
Red eyed male _____
Red eyed female _____

Show a cross between a pure red female and a white eyed male:

Genotypes _____x_____

How many are:
White eyed male _____
White eyed female _____
Red eyed male _____
Red eyed female _____

Name:

Practice Genetics Questions

1. In order for a female to express a sex-linked trait, she must have
   (A) a Y chromosome
   (B) nondisjunction
   (C) aneuploidy
   (D) autosomes
   (E) homozygous genes for the trait

2. A couple has two boys and two girls. If half of their sons are hemophiliacs and the father is normal, the mother must be
   (A) normal
   (B) a carrier
   (C) a hemophiliac
   (D) either a carrier or a hemophiliac
   (E) either normal or a carrier.

3. Hemophilia is an X-linked recessive trait. If a man and a woman produce a son who has hemophilia, what must be true?
   (A) The mother carries an allele for hemophilia.
   (B) The father carries an allele for hemophilia.
   (C) The mother has hemophilia.
   (D) Neither parent has hemophilia.
   (E) Both parents have hemophilia.

4. Which of the following is a sex-linked recessive trait?
   (A) Hemophilia
   (B) Phenylketonuria
   (C) Turner's Syndrome
   (D) Trisomy-21
   (E) Klinefelter's Syndrome

5. In humans, hemophilia is a sex-linked recessive trait. If two parents produce a son with hemophilia, which of the following statements must be true?
   (A) The mother carries the allele for hemophilia
   (B) The mother has hemophilia
   (C) The father carries the allele for hemophilia
   (D) The father has hemophilia
   (E) Both parents carry the allele for hemophilia

6. The human condition of colorblindness is
   (A) caused by a dominant allele
   (B) more common in males
   (C) expressed by a heterozygous genotype in females
   (D) inherited by males from their fathers
   (E) produced by a homozygous genotype in males

7. The lack of a dominant gene that normally provides for the presence of hexosaminidase-A, an enzyme that breaks down fatty substances, is associated with which of the following diseases?
   (A) Tay-Sachs disease
   (B) Lou Gehrig's disease
   (C) Thalassemia
   (D) Huntington's disease
   (E) Phenylketonuria

8. The inherited disease whereby a lack of an enzyme results in metabolic defects, mental retardation and death around age 20 is called
   (A) Phenylketonuria (PKU)
   (B) Amniocentesis
   (C) Viviparity
   (D) Turner's Syndrome
   (E) Klinefelter's Syndrome

9 The sickle cell anemia allele

(A) eventually causes homozygotes to suffer from hemophilia
(B) is somewhat beneficial in that it offers heterozygotes resistance against malaria
(C) is caused by nondisjunction of a pair of homologous chromosomes
(D) is caused by a protozoan parasite
(E) causes hemoglobin to gain affinity for CO

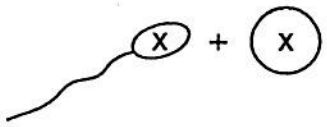
10 A human genetic defect which makes an individual a short sterile female having underdeveloped ovaries and breasts is

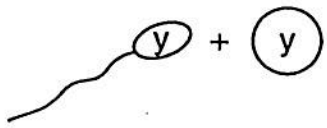
(A) Turner's Syndrome
(B) Down's Syndrome
(C) Klinefelter's Syndrome
(D) Hemophilia
(E) Sickle Cell Anemia

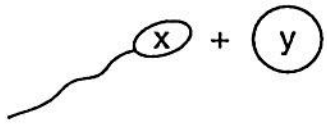
11 A human genetic defect that affects a male by making him tall and sterile with underdeveloped testes is

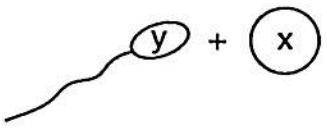
(A) Turner's Syndrome
(B) Hemophilia
(C) Sickle Cell Anemia
(D) Phenylketonuria
(E) Klinefelter's Syndrome

1 Which diagram correctly illustrates the fusion of normal gametes that will most likely produce a human male?

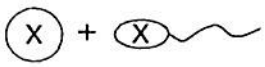
1) 

2) 

3) 

4) 

2 Which diagram illustrates fertilization that would most likely lead to the development of a normal human female?

1) 

2) 

3) 

4) 

3 The sex of a person depends on

1) the genetic makeup of autosomes found in the egg cell
2) the genetic makeup of autosomes found in the sperm cell
3) whether the unfertilized egg contains an *X*- or *Y*-chromosome
4) whether the sperm that fertilizes the egg contains an *X*- or *Y*-chromosome

4 In humans, sex is normally determined at fertilization by

1) one pair of sex chromosomes
2) 2 pairs of sex chromosomes
3) 11 pairs of autosomes
4) 22 pairs of autosomes

5 Genes carried only on an *X*-chromosome are said to be

1) hybrid
2) codominant
3) autosomal
4) sex-linked

6 Certain artificial sweeteners carry a warning label stating that they contain large amounts of the amino acid phenylalanine. This warning is important for individuals who have

1) Tay-Sachs disease
2) sickle-cell anemia
3) PKU
4) Down syndrome

7 Which genetic disorder is characterized by a buildup of fatty tissue in the nervous system?

1) phenylketonuria
2) sickle-cell anemia
3) Down syndrome
4) Tay-Sachs

8 A homozygous condition resulting in the formation of abnormal hemoglobin that distorts certain blood cells is known as

1) hemophilia
2) phenylketonuria
3) Tay-Sachs
4) sickle-cell anemia