Do Now 4.8

Name:

1. The transfer of genes from parents to their offspring is known as

   A) differentiation B) heredity
   C) immunity D) evolution

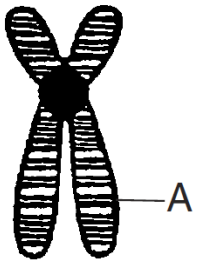
2. Gregor Mendel developed some basic principles of heredity by

   A) crossing pea plants
   B) cutting off the tails of mice
   C) breeding fruit flies
   D) culturing bacteria in a laboratory

3. Which statement is correct concerning hereditary information?

   A) A chromosome is composed of many genes.
   B) A gene is composed of many chromosomes.
   C) Each chromosome carries the same information.
   D) Each gene carries the same information.

4. The diagram below represents a microscopic structure observed during mitosis.



   The region indicated by letter *A* is known as

   A) an enzyme B) a gamete
   C) a gene D) an amino acid

5. Which sequence correctly represents the arrangement of structures containing genetic material, from the largest to the smallest size?

   A) chromosome → gene → nucleus
   B) nucleus → chromosome → gene
   C) gene → chromosome → nucleus
   D) gene → nucleus → chromosome

6. In addition to a phosphate group, a DNA nucleotide could contain

   A) thymine and deoxyribose
   B) uracil and deoxyribose
   C) thymine and ribose
   D) uracil and ribose

7. What is one difference between mitotic cell division in plants and mitotic cell division in animals?

   A) Chromosomes are replicated in plants but not in animals.
   B) The replicated chromosomes separate in plants but not in animals.
   C) A cell plate divides the cytoplasm in plants but not in animals.
   D) The nuclear membrane reforms in plants but not in animals.

8. When an organism reproduces asexually, it usually has

   A) only one parent, and half as much DNA as the parent
   B) only one parent, and the same chromosome number as the parent
   C) two parents, and twice as much DNA as either parent
   D) two parents, and the same chromosome number as each parent

9. Uncontrolled cell division is a characteristic of

   A) cleavage B) oogenesis
   C) cancer D) regeneration

10. A cell with a diploid chromosome number of 12 divided two times, producing four cells with six chromosomes each. The process that produced these four cells was most likely

    A) internal fertilization
    B) external fertilization
    C) mitotic cell division
    D) meiotic cell division

Name _____ Date _____ Period _____

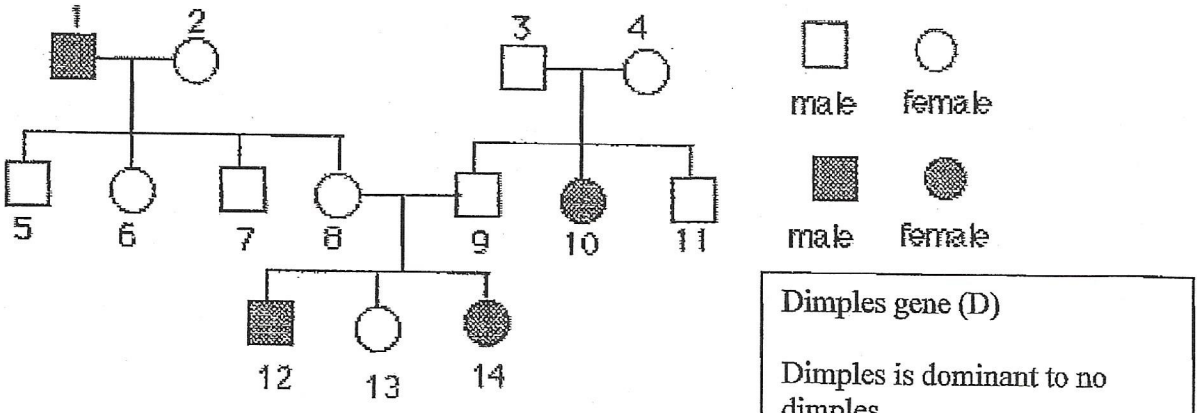
Homework 4.8

15 points

Genetics Pedigree Worksheet

1. Use the below pedigree chart to answer the following questions about dimples. The Dimple gene controls whether a person has dimples or doesn't have dimples. Dimples is dominant to no dimples. Place the genotypes of each individual below its symbol.

Genotypes:
DD
Dd
dd



Dimples gene (D)
Dimples is dominant to no dimples

A) How many family members have Dimples? _____

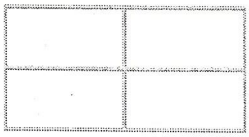
(2 pts) B) What is the genotype of individual #3 and 4? _____

(2 pts) C) Can either individual #8 or 9 be homozygous? Explain. _____

D) Explain the family relationship that #12 has with # 2. _____

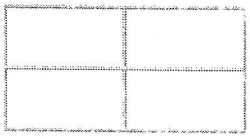
Set up the Punnet squares for each of the crosses listed below.
Round seeds are dominant to wrinkled seeds. Show your punnett square work!

E. Rr x rr



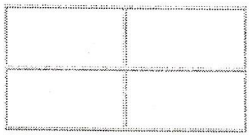
What percentage of the offspring will be round? _____ 2 pts.

F. RR x rr



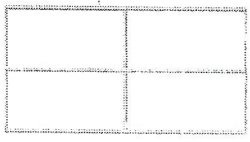
What percentage of the offspring will be round? _____ 2 pts.

G. RR x Rr



What percentage of the offspring will be round? _____ 2 pts.

H. Rr x Rr



What percentage of the offspring will be round? _____ 2 pts

G. Explain the importance of a Pedigree.