

SECTION 8-1 REVIEW

CHROMOSOMES

VOCABULARY REVIEW Distinguish between the terms in each of the following pairs of terms.

1. histone, nonhistone protein _____

2. chromatid, centromere _____

3. sex chromosome, autosome _____

4. diploid cell, haploid cell _____

MULTIPLE CHOICE Write the correct letter in the blank.

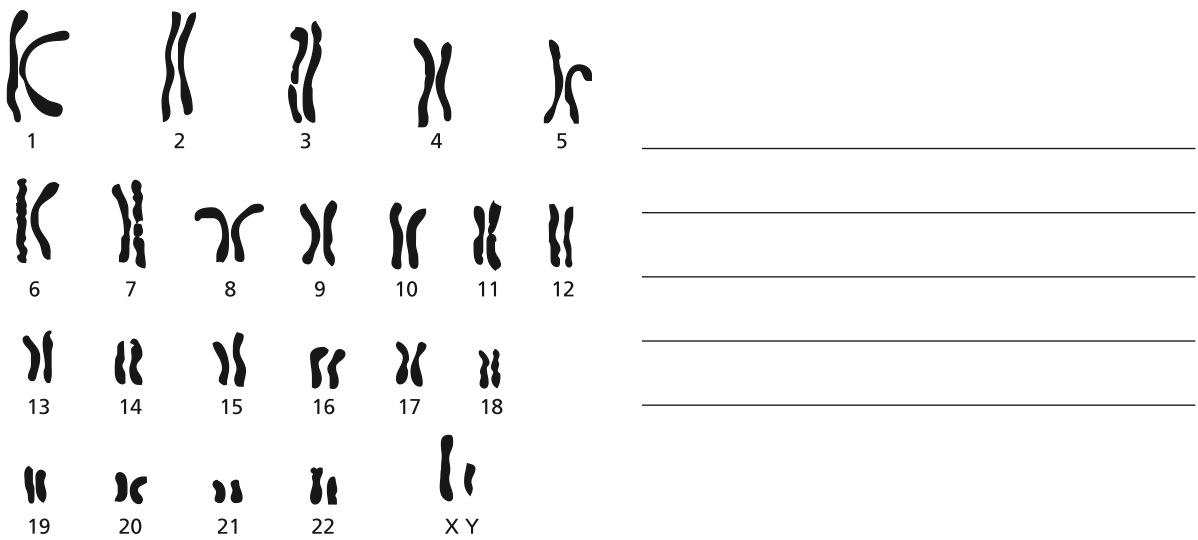
- _____ 1. During cell division, the DNA in a eukaryotic cell is tightly packed and coiled into structures called
 a. centromeres. b. histones. c. haploids. d. chromosomes.
- _____ 2. Between cell divisions, the DNA in a eukaryotic cell is uncoiled and spread out; in this form it is called
 a. chromatid. b. chromatin. c. histone. d. nonhistone.
- _____ 3. The chromosomes of most prokaryotes consist of proteins and
 a. a single circular DNA molecule.
 b. a single linear DNA molecule.
 c. a pair of linear DNA molecules joined in the center.
 d. a pair of homologous, circular DNA molecules.
- _____ 4. Humans have 46 chromosomes in all cells except sperm and egg cells. How many of these chromosomes are autosomes?
 a. 2 b. 23 c. 44 d. 46
- _____ 5. If an organism has a diploid, or $2n$, number of 16, how many chromosomes do its sperm cells or eggs cells contain?
 a. 8 b. 16 c. 32 d. 64

SHORT ANSWER Answer the questions in the space provided.

1. What role do proteins play in enabling the enormous amount of DNA in a eukaryotic cell to fit into the nucleus, and what are those proteins called? _____

2. In what ways are homologous chromosomes similar? _____

3. What is the picture below called, and how is it used to determine the sex of a person?



4. **Critical Thinking** Some relatively simple eukaryotes, such as the adder's tongue fern, may have many more chromosomes than a more complex eukaryote, such as a mammal. What might this suggest about the size and organization of chromosomes in different species?

STRUCTURES AND FUNCTIONS The diagram below shows structures isolated from the nucleus of a dividing eukaryotic cell. Label each structure or pair of structures in the space provided.

