

**Chapter 11, Introduction to Genetics** (continued)

**Section 11-4 Meiosis** (pages 275-278)

This section explains how gametes form in the process of meiosis. It also explains how meiosis is different from mitosis.

**Introduction** (page 275)

1. List the two things that Mendel's principles of genetics required in order to be true.

a. \_\_\_\_\_  
 \_\_\_\_\_  
 b. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Chromosome Number** (page 275)

2. What does it mean when two sets of chromosomes are homologous? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Circle the letter of each way to describe a diploid cell.

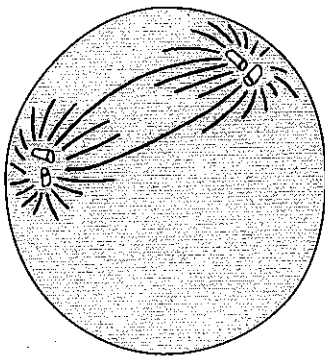
- a. 2N  
 b. Contains two sets of homologous chromosomes  
 c. Contains a single set of homologous chromosomes  
 d. A gamete

4. Circle the letter of the number of chromosomes in a haploid *Drosophila* cell.

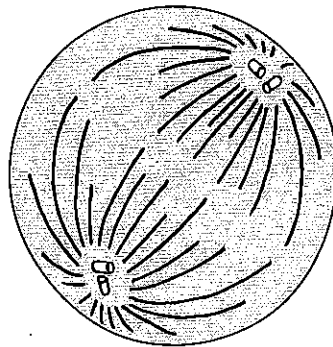
- a. 8                      b. 4                      c. 2                      d. 0

**Phases of Meiosis** (pages 276-277)

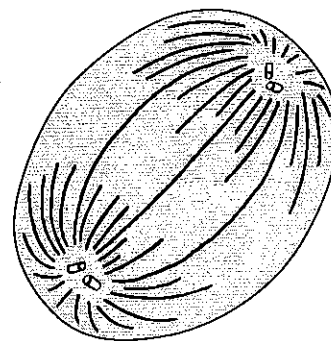
5. Draw the chromosomes in the diagrams below to show the correct phase of meiosis.



Prophase I



Metaphase I



Anaphase II

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

6. Why is meiosis described as a process of reduction division? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. What are the two distinct divisions of meiosis?  
a. \_\_\_\_\_ b. \_\_\_\_\_
8. Is the following sentence true or false? The diploid cell that enters meiosis becomes 4 haploid cells at the end of meiosis. \_\_\_\_\_
9. How does a tetrad form in prophase I of meiosis? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
10. Circle the number of chromatids in a tetrad.  
a. 8                      b. 6                      c. 4                      d. 2
11. What results from the process of crossing-over during prophase I? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. Circle the letter of each sentence that is true about meiosis.  
a. During meiosis I, homologous chromosomes separate.  
b. The two daughter cells produced by meiosis I still have the two complete sets of chromosomes as a diploid cell does.  
c. During anaphase II, the paired chromatids separate.  
d. After meiosis II, the four daughter cells contain the diploid number of chromosomes.

### Gamete Formation (page 278)

Match the products of meiosis with the descriptions.

	Description	Product of Meiosis
_____	13. Haploid gametes produced in males	a. eggs
_____	14. Haploid gametes produced in females	b. sperm
_____	15. Cells produced in females that do not participate in reproduction	c. polar bodies

### Comparing Mitosis and Meiosis (page 278)

16. Circle the letter of each sentence that is true about mitosis and meiosis.
- a. Mitosis produces four genetically different haploid cells.
  - b. Meiosis produces two genetically identical diploid cells.
  - c. Mitosis begins with a diploid cell.
  - d. Meiosis begins with a diploid cell.