

Section 11-4 Meiosis (pages 275-278)



Key Concepts

- What happens during the process of meiosis?
- How is meiosis 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

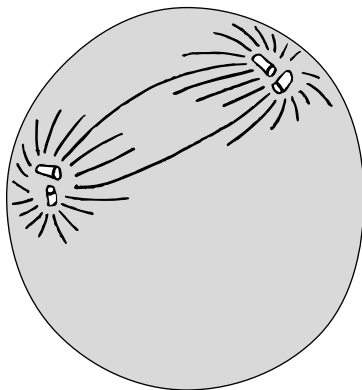
b. 4

c. 2

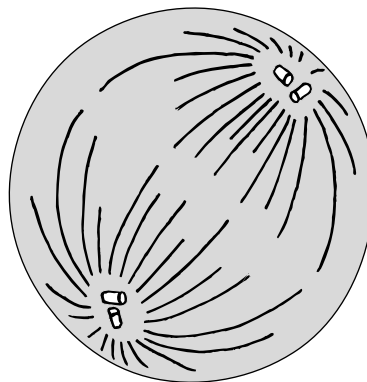
d. 0

Phases of Meiosis (pages 275-277)

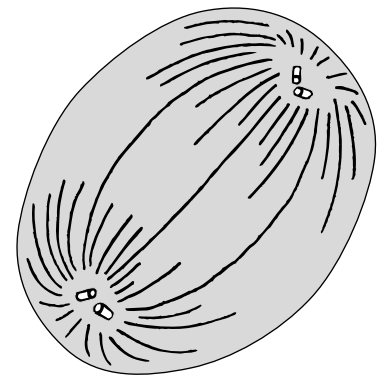
5. Draw the chromosomes in the diagrams below to show the correct phase of meiosis.



Prophase I

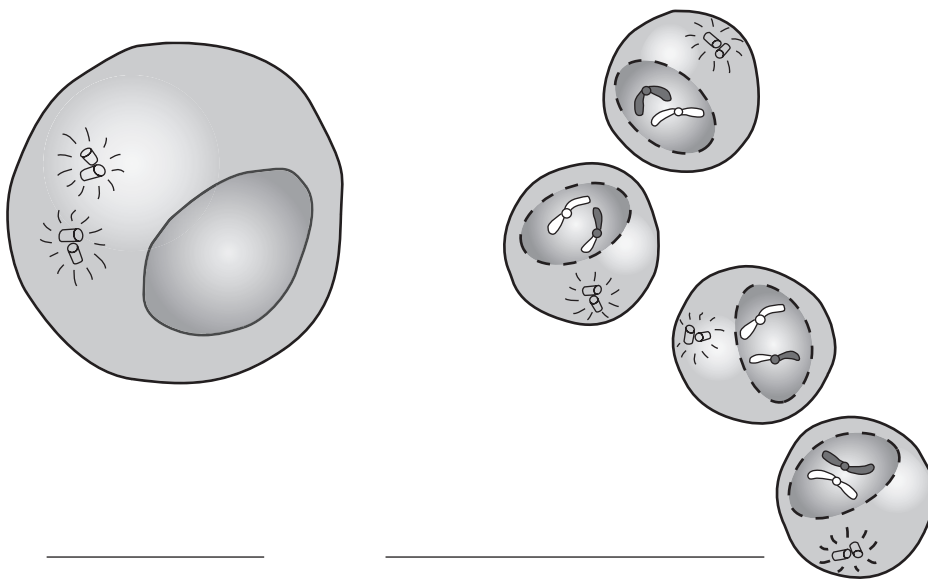


Metaphase I



Anaphase II

6. Identify which phase of meiosis is shown in the diagrams below.



7. Why is meiosis described as a process of reduction division? _____

8. What are the two distinct divisions of meiosis?

a. _____ b. _____

9. Is the following sentence true or false? The diploid cell that enters meiosis becomes 4 haploid cells at the end of meiosis. _____

10. How does a tetrad form in prophase I of meiosis? _____

11. Circle the number of chromatids in a tetrad.

a. 8 b. 6 c. 4 d. 2

12. What results from the process of crossing-over during prophase I? _____

13. 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 does a diploid cell.
 - 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.

Product of Meiosis	Description
_____ 14. eggs	a. Haploid gametes produced in males
_____ 15. sperm	b. Haploid gametes produced in females
_____ 16. polar bodies	c. Cells produced in females that do not participate in reproduction

Comparing Mitosis and Meiosis (page 278)

17. 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.

Reading Skill Practice

You can often increase your understanding of what you've read by making comparisons. A compare-and-contrast table helps you to do this. On a separate sheet of paper, make a table to compare the processes of mitosis and meiosis. For more information about compare-and-contrast tables, see Organizing Information in Appendix A in your textbook.