

CHAPTER 11.4—11.6: Meiosis and Sexual Reproduction

1. Define the following terms:

a. gametes _____

b. somatic cells _____

c. zygote _____

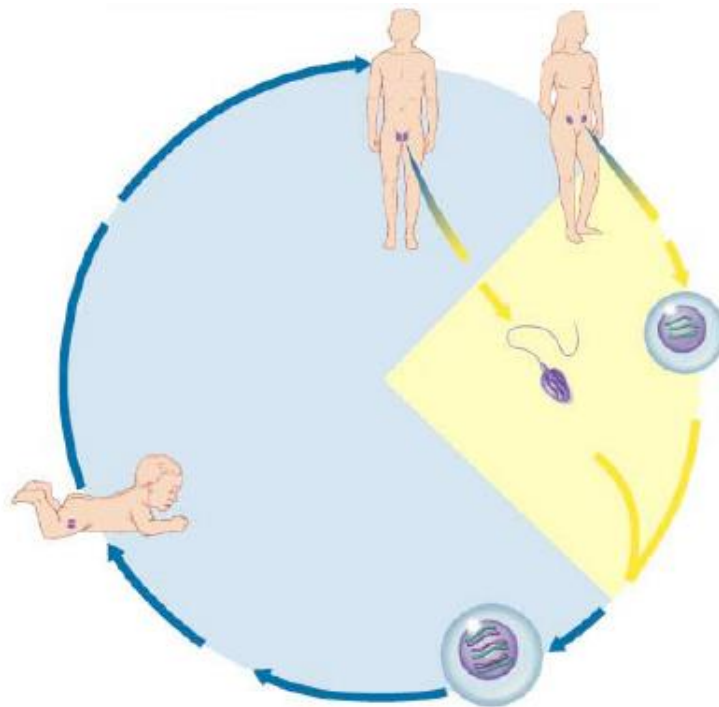
d. fertilization _____

e. diploid _____

f. haploid _____

2. Why is meiosis called "reduction division"? Why is this process necessary for sexual reproduction?

3. Label the diagram of the human lifecycle. Include the chromosome numbers at each stage.

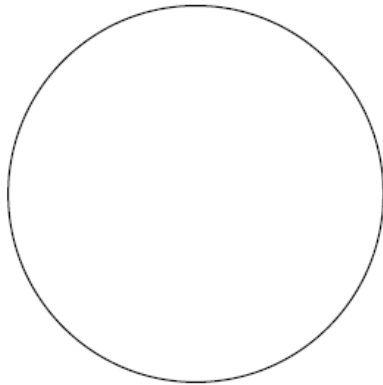


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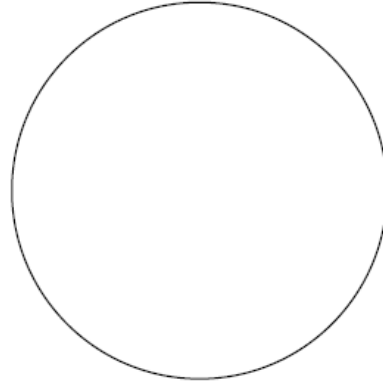
Question Set 27-28

4. Explain synapsis.

5. Use the diagrams below to distinguish mitosis from meiosis. For an organism where $2n=4$, draw a cell at **metaphase of mitosis** and a cell at **metaphase 1 of meiosis**.



Metaphase of mitosis



Metaphase 1 of meiosis

6. Meiosis is said to be a double division. Explain.

7. Draw a pair of homologous chromosomes in **synapsis (Prophase I)** and then illustrate a crossing over event and the products of crossing over. Label the chiasmata.

Name: _____

8. At what stage of meiosis does crossing over occur? _____

9. Compare the final cellular products of mitosis with meiosis.

a. Mitosis _____

b. Meiosis _____

10. Summarize the significant differences between mitosis and meiosis.

MITOSIS	MEIOSIS

11. Meiosis is an important source of variation. Define and describe how each of the following contributes to variation within a species:

a. independent assortment _____

b. crossing over _____

c. random fertilization _____

12. What is the significance of genetic variation to natural selection and evolution?

13. What is the difference between necrosis and apoptosis?

14. Read ahead in section 12.4 (pg. 247—250). How is recombination frequency used to determine relative distances between genes on the same chromosomes?

15. List and describe a few specific examples of non-disjunctions that occur in humans.

- a. _____
- b. _____
- c. _____
- d. _____

16. How can a parent learn the risks of having a child with a genetic disorder?

17. Explain procedures that can be used to detect genetic defects early in pregnancy.

- a. _____

- b. _____
