Name _____ Date _____ Class _____

Study Guide

CHAPTER 9
Section 1: Cellular Growth

In your textbook, read about cell size limitations.

List two alternative futures for cells when they reach their size limitations.

1. _____

2. _____

In your textbook, read about the cell cycle.

Draw the cell cycle in the space below. Include the following labels: cytokinesis, G_1, G_2, interphase, mitosis, S.

3.

Match the definition in Column A with the term in Column B.

	Column A	Column B
_____	**4.** stage in which the cell divides into two daughter cells with identical nuclei	**A.** S phase
_____	**5.** substage of interphase immediately after a cell divides	**B.** cytokinesis
_____	**6.** substage of interphase in which the cell copies its DNA in preparation for cell division	**C.** G_1
_____	**7.** stage in which the cell's nuclear material divides and separates	**D.** G_2
_____	**8.** main stage in which the cell grows, carries out normal functions, and duplicates its DNA	**E.** interphase
_____	**9.** substage in which the cell prepares for nuclear division and a protein that makes microtubles for cell division is synthesized	**F.** mitosis

Name _____ Date _____ Class _____

Study Guide

CHAPTER 9

Section 2: Mitosis and Cytokinesis

In your textbook, read about the stages of mitosis.

For each statement below, write true *or* false.

_____ **1.** The nuclear membrane disintegrates during prophase.

_____ **2.** Microtubules move chromatids to the poles of the cell during anaphase.

_____ **3.** Chromosomes reach the poles of the cell during metaphase.

_____ **4.** The cell's chromatin condenses into chromosomes during prophase.

_____ **5.** The nuclear envelope re-forms during anaphase.

_____ **6.** Chromosomes attach to spindle fibers and line up along the equator of the cell during metaphase.

_____ **7.** The nucleus reappears during prophase.

_____ **8.** Centrioles migrate to the poles of the cell during telophase.

_____ **9.** Chromatids are pulled apart during anaphase.

_____ **10.** The first stage of mitosis is telophase.

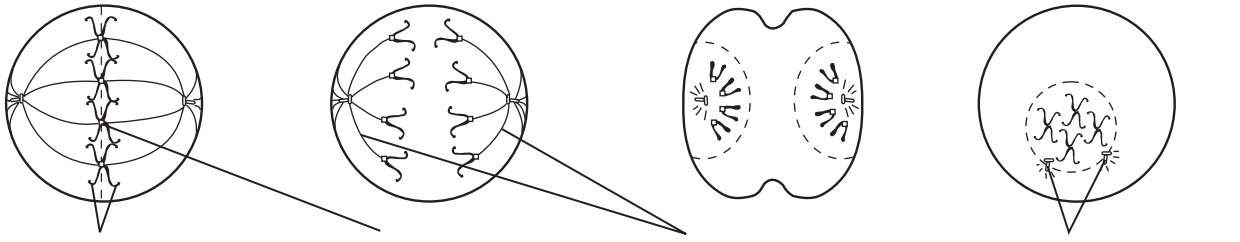
_____ **11.** The chromosomes decondense or unwind during telophase.

_____ **12.** One of the shortest stages of mitosis is metaphase.

Label the diagram of the stages of mitosis using lines 13–16. Use these choices:

anaphase **metaphase** **prophase** **telophase**

13. _____ **14.** _____ **15.** _____ **16.** _____

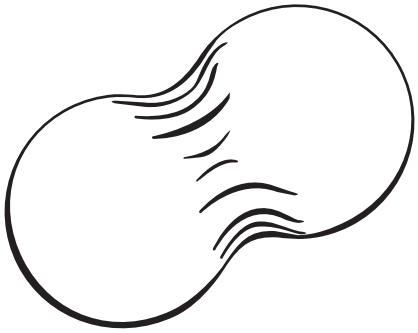


17. _____ **18.** _____ **19.** _____ **20.** _____

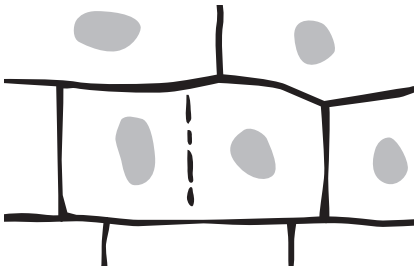
Label the diagrams above using lines 17–20. Use these choices:

centrioles **centromere** **sister chromatids** **spindle fibers**

In your textbook, read about cytokinesis.



Animal cell



Plant cells

Refer to the diagrams above. Respond to each statement.

21. Discuss the role of microfilaments in cytokinesis.

22. Summarize cell division in prokaryotes.

Draw the formation of two genetically identical cells in plants in the space below. Include the following labels: cell plate, identical daughter cells, new cell wall.

23.

Name _____ Date _____ Class _____

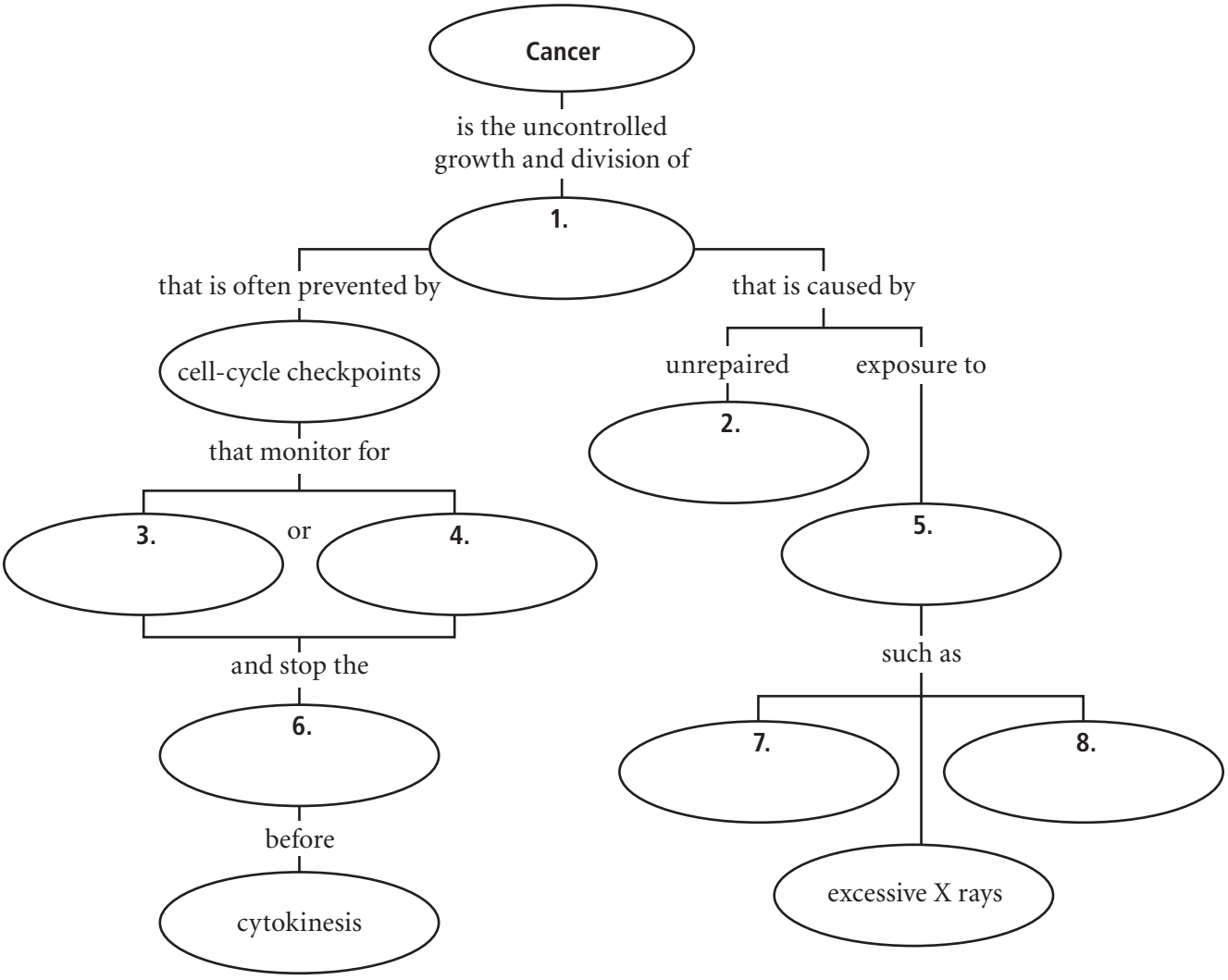
Study Guide

CHAPTER 9

Section 3: Cell Cycle Regulation

In your textbook, read about the abnormal cell cycle and cancer.

Complete the graphic organizer about the causes and prevention of cancer. These terms may be used more than once: carcinogens, cell cycle, cells, DNA damage, genetic changes, spindle fiber failure, the Sun's ultraviolet rays, tobacco.



Complete the table by checking the correct column for each description.

Description	Apoptosis	Stem Cells
9. After a sperm fertilizes an egg, the resulting mass of cells divides until there are about 100 to 150 cells.		
10. Some cells go through a programmed death.		
11. Embryonic cells shrivel and die, resulting in the formation of fingers and toes.		
12. Unspecialized cells are either embryonic or adult.		
13. This event occurs in cells that are damaged beyond repair.		