

Pretest: Cells: Stability and Change

Read each question. Circle the letter of the correct answer.

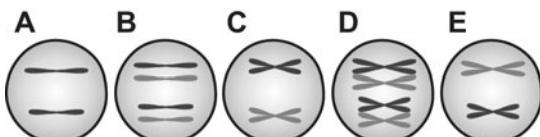
1. Which cells are produced during the first few divisions of the zygote?

- A. bone cells
- B. epithelial cells
- C. cardiac muscle cells
- D. embryonic stem cells

2. Which of these is the process during which some of a plant's cells become root cells, and other cells form the plant's stem?

- A. meiosis
- B. mutation
- C. homeostasis
- D. differentiation

3. The diagram shows steps of mitosis.



Which of these diagrams depicts a cell at the end of mitosis?

- A. A
- B. B
- C. C
- D. D

4. At the beginning of which of these does the process of organizing and condensing DNA into its compact form take place?

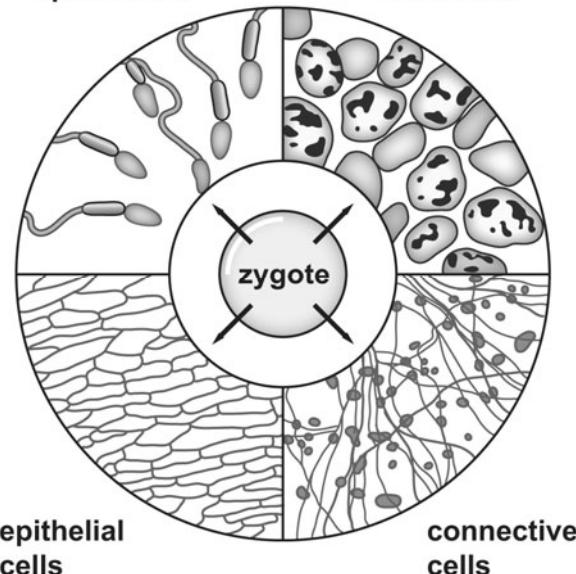
- A. mitosis
- B. metaphase
- C. interphase
- D. cytokinesis

5. Which of these characteristics is shared by all living things?

- A. They have similar responses to light.
- B. They make their own chemical energy.
- C. They are made up of one or more cells.
- D. They reproduce when one cell divides into two.

6. What process is shown in the diagram?

sperm cells **bone cells**



- A. control systems

- B. cell determination

- C. cell differentiation

- D. internal environment

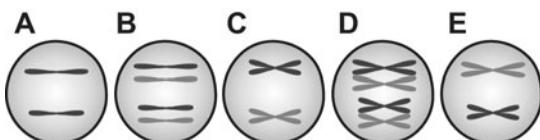
7. Which aspect of stem cells makes them important to multicellular organisms?

- A. their ability to relocate
- B. their capacity to differentiate
- C. their potential to become totipotent
- D. their tendency to maintain homeostasis

- 8.** About how many different combinations of chromosomes can be produced through the random fertilization of human gametes?

- A. $2^4 \times 2^4$
- B. $2^{16} \times 2^{16}$
- C. $2^{23} \times 2^{23}$
- D. $2^{46} \times 2^{46}$

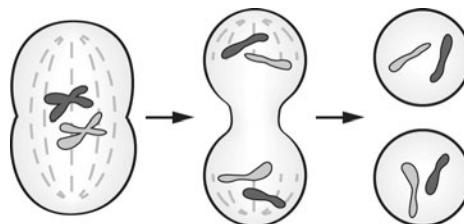
- 9.** The diagram shows steps of mitosis.



Which of these diagrams depicts a cell at the beginning of mitosis?

- A. B
 - B. C
 - C. D
 - D. E
- 10.** Why was Ian Wilmut's cloning of Dolly in 1997 considered to be a breakthrough in genetic engineering?
- A. Scientists thought cloning was impossible.
 - B. Scientists had never before isolated mammary cells.
 - C. Sheep had never responded well to gene technology procedures.
 - D. Multicellular animals have a complex process of embryo development.

- 11.** Look at the image shown here.



What process is shown in the image?

- A. mitosis
- B. meiosis
- C. binary fission
- D. gene expression

- 12.** Study the image of a chromosome.



chromosome

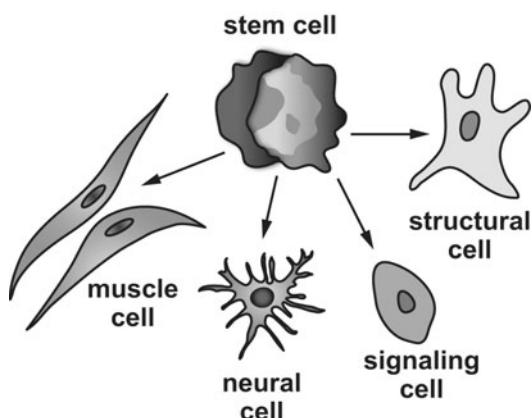
Which of the following statements about the chromosome is true?

- A. Each half of the chromosome is genetically identical.
- B. Once formed, a chromosome always stays in this X shape.
- C. Each half of the chromosome contains genetically different material.
- D. The pinched middle of the chromosome is what allows it to split during mitosis.

- 13.** Which statement is true about the process of mitosis?

- A. The process occurs only in plants.
- B. The process occurs only in animals.
- C. The process occurs in every type of organism.
- D. The process occurs only in multicellular organisms.

14. Look at the diagram shown here.



Which answer choice best describes the process shown?

- A. mitosis
- B. evolution
- C. cell division
- D. cell differentiation

15. Which image shows the most complex part of an organism?

