

Pretest: Cells: Stability and Change

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

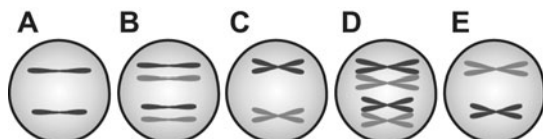
1. Which cells are produced during the first few divisions of the zygote?

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

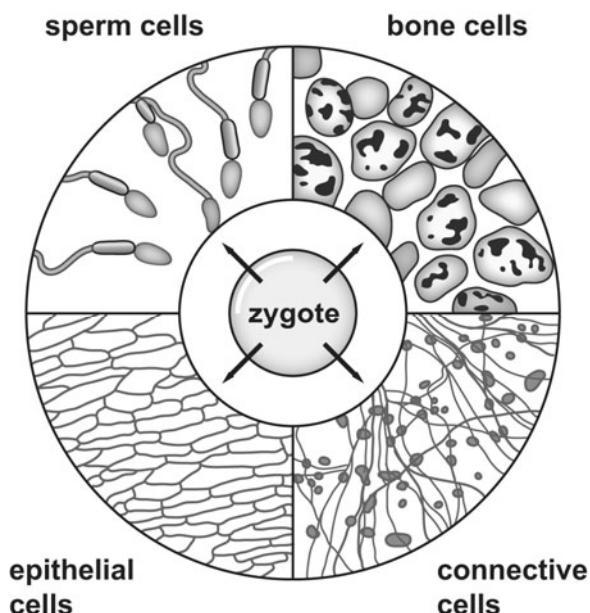
4. At the beginning of which of these does the process of organizing and condensing DNA into its compact form take place?

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?



A. control systems
B. cell determination
C. cell differentiation
D. internal environment

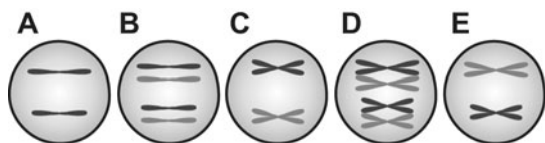
7. Which aspect of stem cells makes them important to multicellular organisms?

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. $2^{46} \times 2^{46}$

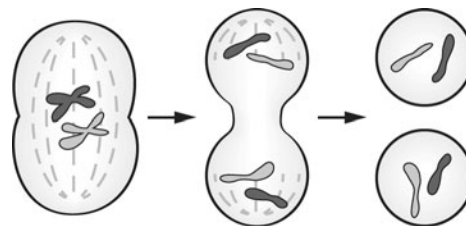
9. The diagram shows steps of mitosis.



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.

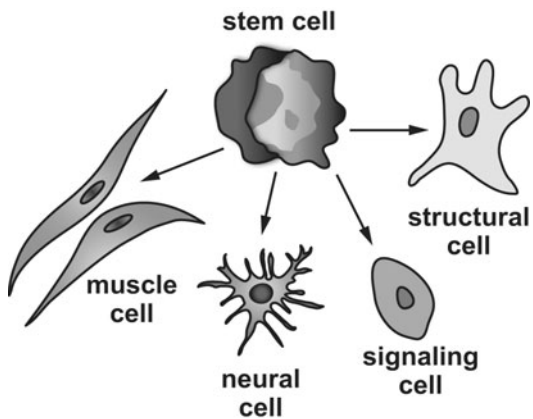


chromosome

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?

