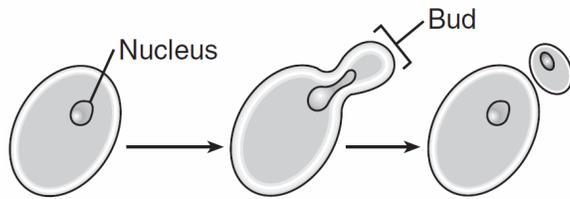


Mitosis Review

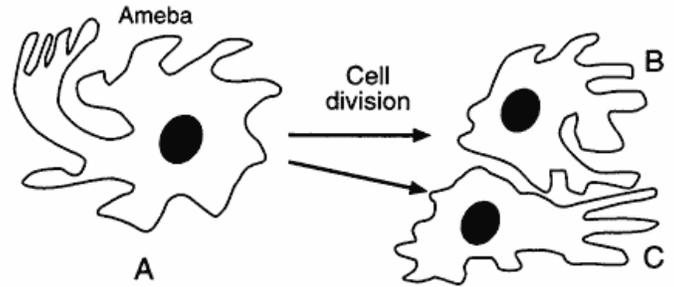
1. Base your answer to the following question on The diagram below illustrates asexual reproduction in yeast.



Yeast produce offspring that usually have

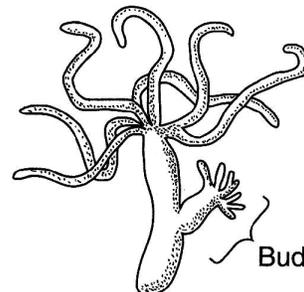
- A) genes that are different from those of the parent
 - B) genes that are identical to those of the parent**
 - C) half of the genetic information of the parent
 - D) Nuclei that are different from the parent
2. A farmer found that one tree in his pear orchard produced especially delicious fruit. Which method would most quickly provide a large crop of these pears?
- A) planting seeds of the pears from this tree
 - B) crossing this tree with another tree in the orchard
 - C) providing the tree with a special fertilizer containing minerals
 - D) grafting branches from this tree onto other trees in the orchard**

3. The diagram below represents a cell process.



Which statement regarding this process is correct?

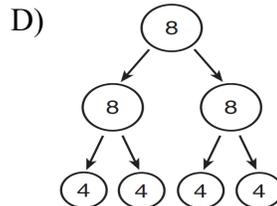
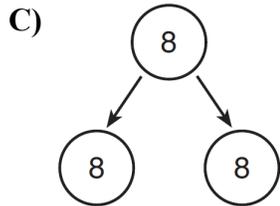
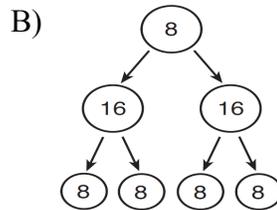
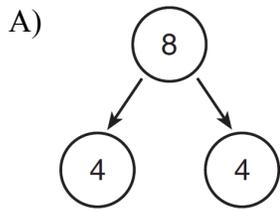
- A) Cell B contains the same genetic information that cells A and C contain.**
 - B) Cell C has DNA that is only 50% identical to cell B.
 - C) Cell A has DNA that is only 75% identical to cell B.
 - D) Cells A, B, and C contain completely different genetic information.
4. The bud shown in the diagram below was produced by asexual reproduction.



Which process is responsible for the formation of the bud?

- A) fertilization
- B) recombination
- C) mitosis**
- D) meiosis

5. The number in each circle below represents the chromosome number of the cell. Which diagram represents the production of offspring by an asexually reproducing organism



6. The sequence of events occurring in the life cycle of a bacterium is listed below.

- (A) The bacterium copies its single chromosome.
- (B) The copies of the chromosome attach to the cell membrane of the bacterium.
- (C) As the cell grows, the two copies of the chromosome separate.
- (D) The cell is separated by a wall into equal halves.
- (E) Each new cell has one copy of the chromosome.

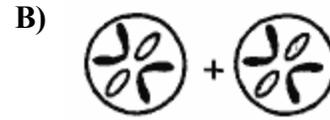
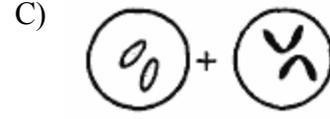
This sequence most closely resembles the process of

- A) recombination
- B) zygote formation
- C) **mitotic cell division**
- D) meiotic cell division

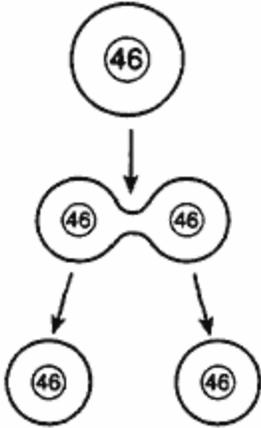
7. The diagram below represents chromosomes in a zygote.



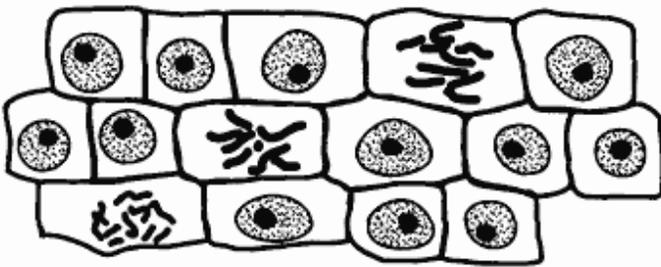
Which diagrams best illustrate the daughter cells that result from normal mitotic cell division of this zygote?

- A) 
- B) 
- C) 
- D) 

8. The diagram below can be used to illustrate a process directly involved in

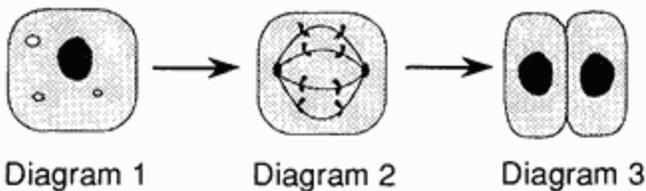


- A) tissue repair
 B) meiosis
 C) recombination
 D) sexual reproduction
9. The diagram below shows some cells in the meristematic region of a root tip.



Which statement about these cells is correct?

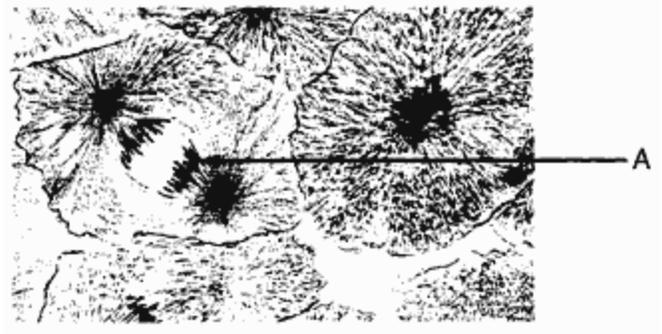
- A) About 20 percent of the cells are dividing.
 B) About 80 percent of the cells are dividing.
 C) Most of the cells are undergoing meiosis.
 D) Most of the cells will never undergo mitosis.
10. The diagrams below represent a cell process.



If the cell in diagram 1 contains 4 chromosomes, what is the total number of chromosomes in each cell in diagram 3?

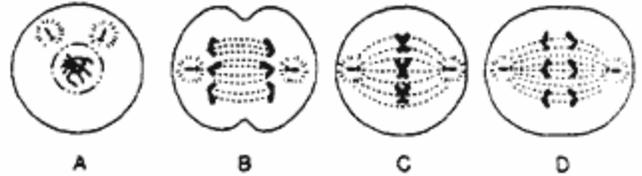
- A) 8 B) 2 C) 16 D) 4

11. Cells of a whitefish embryo were viewed under high power of a compound microscope and a photograph was taken as shown below.



Which structures are indicated by *A*?

- A) ribosomes B) centrioles
 C) centrosomes D) **chromosomes**
12. Which is the correct sequence for the stages of mitotic cell division represented by the diagrams below?



- A) $A \rightarrow B \rightarrow C \rightarrow D$ B) $A \rightarrow C \rightarrow D \rightarrow B$
 C) $B \rightarrow A \rightarrow D \rightarrow C$ D) $B \rightarrow C \rightarrow D \rightarrow A$
13. The following list describes some of the events associated with normal cell division.
- A*–Nuclear membrane formation around each set of newly formed chromosomes
 - B*–Separation of centromeres
 - C*–Replication of each chromosome
 - D*–Movement of single-stranded chromosomes to opposite ends of the spindle

What is the normal sequence in which these events occur?

- A) $A \rightarrow B \rightarrow C \rightarrow D$ B) $C \rightarrow B \rightarrow D \rightarrow A$
 C) $C \rightarrow D \rightarrow B \rightarrow A$ D) $D \rightarrow C \rightarrow A \rightarrow B$
14. In human skin cells, the products of a normal mitotic cell division are
- A) 4 diploid cells B) **2 diploid cells**
 C) 2 monoploid cells D) 4 monoploid cells

15. One difference between cell division in plant cells and in animal cells is that

- A) **plants form a cell plate between daughter cells but animals do not**
- B) more cytoplasm forms in animal cells than in plant cells
- C) centrioles form in plant cells but not in animal cells
- D) a double nucleus forms in animal cells but not in plant cells

16. Base your answer to the following question on the information below and on your knowledge of biology. All organisms need to reproduce for the continuation of their species. Discuss the process of reproduction in humans.

State *one* way the nucleus of a sex cell is different from the nucleus of a body cell.

17. Base your answer to this question on the list below and on your knowledge of biology.

The list includes two processes involved in the development of a human fetus.

Processes

mitosis

differentiation

Select one process from the list and describe its role in the development of a human fetus. In your answer be sure to:

- identify the process you selected
 - state the role of this process in fetal development
 - identify the organ in the mother where this process occurs
-

Answer Key Mitosis Review

1. **B**
 2. **D**
 3. **A**
 4. **C**
 5. **C**
 6. **C**
 7. **B**
 8. **A**
 9. **A**
 10. **D**
 11. **D**
 12. **B**
 13. **B**
 14. **B**
 15. **A**
 16. – It has half the normal chromosome number/half of the genes. – Sex cells are haploid/monoploid.
– 23 chromosomes in sex cells, 46 in body cells.
 17. •Examples for role of the student-selected process in fetal development:
— Mitosis produces more cells, causing the fetus to grow. — Differentiation causes individual cells to have specialized functions, resulting in the formation of tissues and organs.
•Examples for organ in the mother where the student-selected process occurs:
Mitosis — uterus
Differentiation — uterus
-