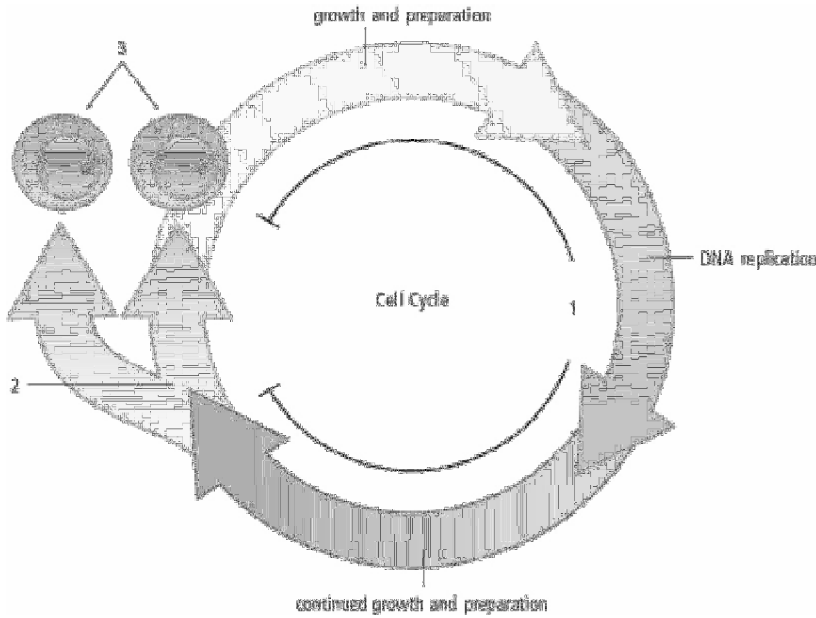


**Mitosis & Meiosis Practice Test**

**Modified True/False**

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

\_\_\_ 1. Stage 1 of the cell cycle is labelled on the diagram below. The name of this stage is interphase.



- \_\_\_ 2. The stage of the cell cycle in which the cell grows and produces new organelles as needed is called interphase. \_\_\_\_\_
- \_\_\_ 3. The process in which the contents of a cell's nucleus divides is mitosis. \_\_\_\_\_
- \_\_\_ 4. During the process of mitosis each pair of identical DNA molecules joins together to form sister chromatids. \_\_\_\_\_
- \_\_\_ 5. During mitosis the sister chromatids join together at the centriole. \_\_\_\_\_
- \_\_\_ 6. Special proteins monitor the success of the cell cycle once it is complete, but not during the cycle. \_\_\_\_\_
- \_\_\_ 7. Cancer cells grow in multiple layers because neighbouring cells don't tell them to stop. \_\_\_\_\_
- \_\_\_ 8. Cancer cells are specialized cells that take over the role of normal organ cells. \_\_\_\_\_
- \_\_\_ 9. Human gametes have 23 chromosomes. \_\_\_\_\_
- \_\_\_ 10. When a single cell undergoes meiosis, four gametes are produced. \_\_\_\_\_

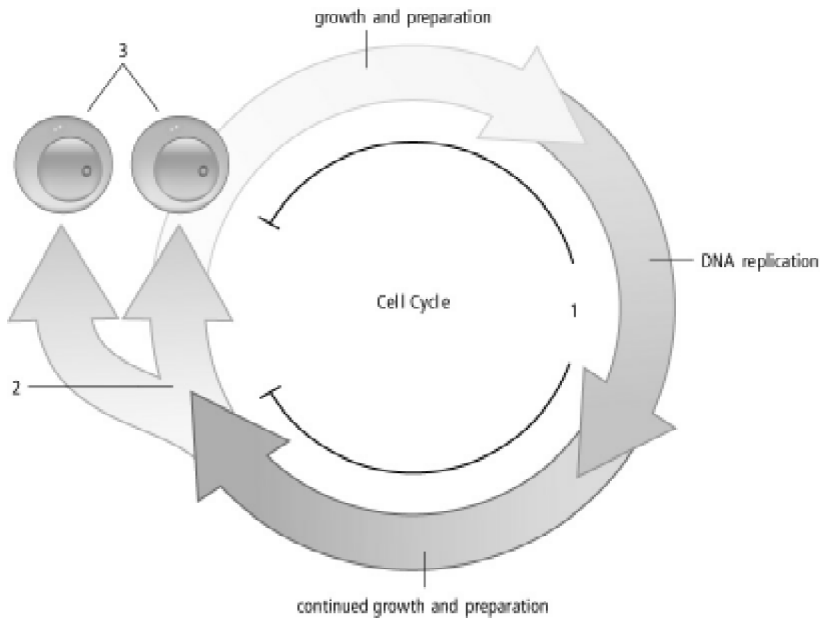
- \_\_\_\_\_ 11. A gamete is a diploid cell. \_\_\_\_\_
- \_\_\_\_\_ 12. When a chromosome from one parent is matched up with a chromosome from the other parent, upon zygote formation, the chromosomes are said to be homologous. \_\_\_\_\_

### Multiple Choice

*Identify the choice that best completes the statement or answers the question.*

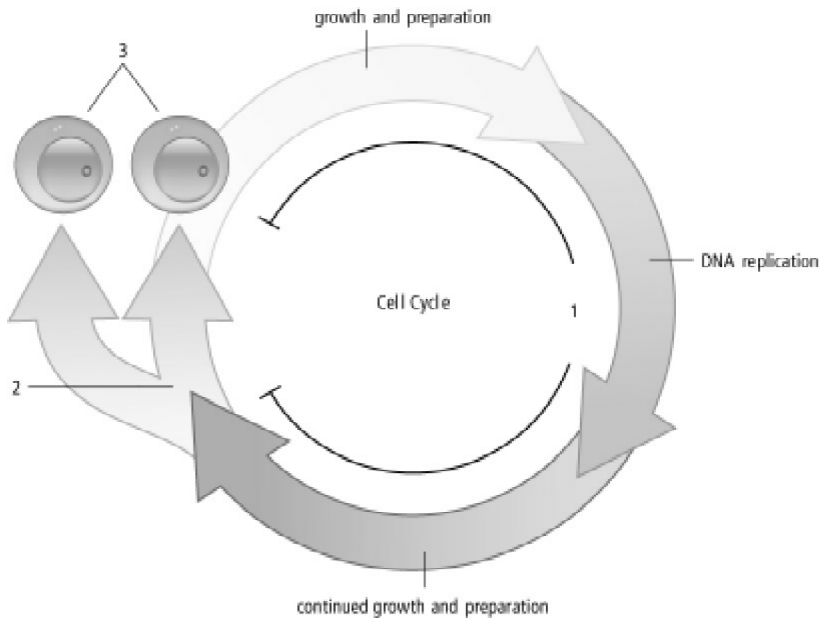
- \_\_\_\_\_ 13. Cancer is an example of
- a) a recessive trait.
  - b) a trait that shows continuous variation.
  - c) a dominant trait.
  - d) the effect of a genetic mutation in body cells.
- \_\_\_\_\_ 14. Where in the cell are the chromosomes located?
- a) nucleus
  - b) vacuoles
  - c) chloroplasts
  - d) cytoplasm
- \_\_\_\_\_ 15. The nucleus of every cell contains deoxyribonucleic acid, which is also known as
- a) DNA.
  - b) RNA.
  - c) RNL.
  - d) DRA.
- \_\_\_\_\_ 16. New body cells (e.g., skin, muscle) are produced by
- a) mitosis.
  - b) meiosis.
  - c) eggs.
  - d) fertilization.
- \_\_\_\_\_ 17. Mitosis produces a(n)
- a) sperm.
  - b) egg.
  - c) pair of identical cells.
  - d) gamete.
- \_\_\_\_\_ 18. Mitosis is the process by which
- a) a zygote is produced.
  - b) sperm are produced.
  - c) a body cell makes an exact duplicate of itself.
  - d) gametes are produced in the ovaries or testes.

\_\_\_ 19. Stage 2 of the cell cycle is labelled on the diagram below. What is the name of this stage?



- a) mitosis
- b) telophase
- c) interphase
- d) cytokinesis

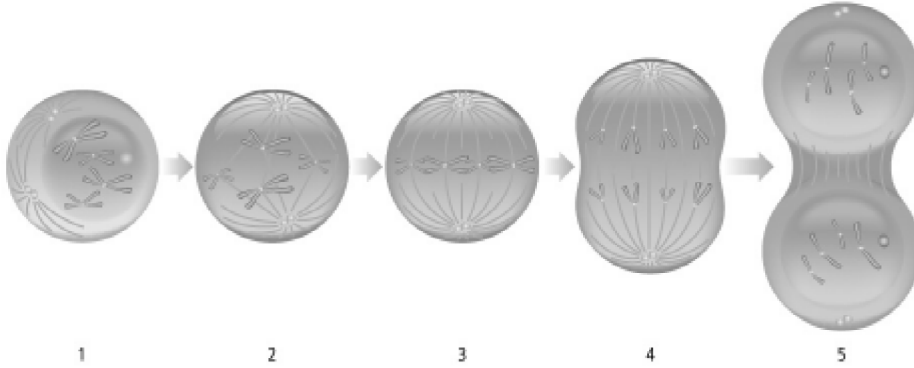
\_\_\_ 20. The process in stage 3 in the cell cycle diagram below shows the process of



- a) replication.
- b) cytokinesis.
- c) interphase.
- d) mitosis.

- \_\_\_ 21. The stage of mitosis during which the nucleolus and nuclear membrane disappear is
- a) anaphase.
  - b) prophase.
  - c) metaphase.
  - d) telophase.

- \_\_\_ 22. The diagram below shows



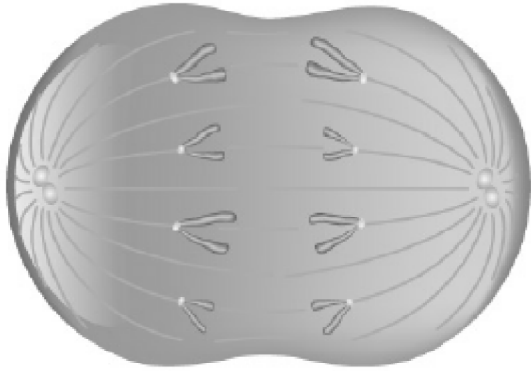
- a) the steps of metaphase.
  - b) mitosis.
  - c) the cell cycle.
  - d) meiosis.
- \_\_\_ 23. While looking through a microscope you observe the following:



What is the name of this stage of the cell cycle?

- a) cytokinesis
- b) telophase
- c) anaphase
- d) interphase

\_\_\_ 24. While looking through a microscope you observe the following:



What is the name of this stage of the cell cycle?

- a) interphase
- b) cytokinesis
- c) anaphase
- d) telophase

\_\_\_ 25. While looking through a microscope you observe the following:



What is the name of this stage of the cell cycle?

- a) late prophase
- b) anaphase
- c) early prophase
- d) telophase

\_\_\_ 26. DNA is duplicated during this stage of the cell cycle identified as

- a) replication.
- b) cytokinesis.
- c) interphase.
- d) prophase.

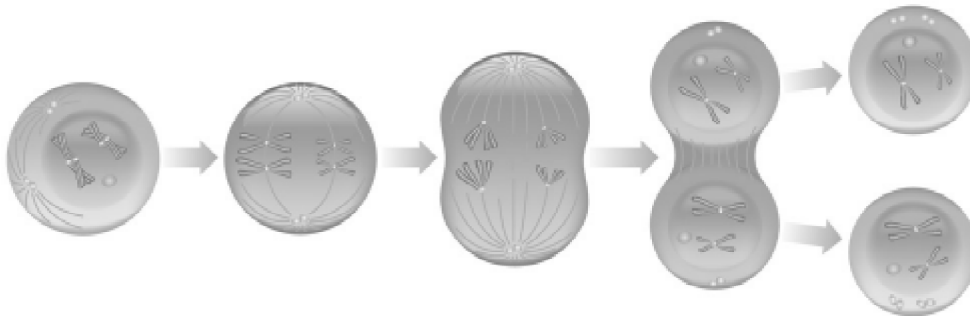
\_\_\_ 27. The three stages of the cell cycle are identified as

- a) replication, growth, and cytokinesis.
- b) prophase, metaphase, anaphase, and telophase.
- c) growth, replication, and mitosis.
- d) interphase, mitosis, and cytokinesis.

\_\_\_ 28. Most of the cell's growth occurs during

- a) prophase.
- b) cytokinesis.
- c) interphase.
- d) telophase.

- \_\_\_ 29. The chromosomes are pulled into a single line across the middle or equator of the cell during
- metaphase.
  - prophase.
  - anaphase.
  - telophase.
- \_\_\_ 30. The tiny tube-like structures, which are made of proteins and are found in the cell during mitosis, are
- centrioles.
  - spindle fibres.
  - centromeres.
  - chromatids.
- \_\_\_ 31. Cells are *not* likely to divide if
- there are not enough nutrients to support cell growth.
  - the DNA has been damaged in any way.
  - the DNA within the nucleus has not been replicated.
  - any of the above are true.
- \_\_\_ 32. Cell cycle control may be lost if
- the cells grow in a single layer.
  - specialized cells form during the cell cycle.
  - a mutation occurs in the gene producing checkpoint proteins.
  - the cell is exposed to a small amount of fluorescent light.
- \_\_\_ 33. Sexual reproduction
- is found only in animals.
  - creates variations among individuals.
  - produces genetically identical individuals.
  - enables organisms to produce many offspring very quickly.
- \_\_\_ 34. Each inherited characteristic is determined by genes passed on from
- the mother and her parents.
  - the mother only.
  - the father and his parents.
  - the father and mother.



- \_\_\_ 35. Which process is shown in the illustration above?
- fertilization
  - genetic engineering
  - meiosis
  - mitosis
- \_\_\_ 36. How many chromosomes do human beings have in each of their body cells?
- 46
  - 92
  - 23
  - 52

- \_\_\_ 37. Which process produces gametes?  
a) variation  
b) mitosis  
c) meiosis  
d) fertilization
- \_\_\_ 38. How many chromosomes are there in the nucleus of a human sperm cell?  
a) 22  
b) three  
c) 23  
d) 46
- \_\_\_ 39. A gene is  
a) another name for a chromosome.  
b) a tightly coiled strand of DNA.  
c) the result of meiosis.  
d) a section of DNA that codes for a specific protein.
- \_\_\_ 40. Which of the following is a source of variation in sexual reproduction?  
a) The random division of chromosome pairs into gametes  
b) The duplication of genetic material before mitosis  
c) The combination of gametes from two parents  
d) Both A and C
- \_\_\_ 41. A cell produced by meiosis has  
a) twice as many chromosomes as the mother cell.  
b) the same number of chromosomes as the mother cell, but each cell is half its original size.  
c) the same number of chromosomes as the mother cell.  
d) half as many chromosomes as the mother cell.
- \_\_\_ 42. Sperm and eggs are produced by  
a) mitosis.  
b) meiosis.  
c) asexual reproduction.  
d) fertilization.
- \_\_\_ 43. Which statement below best describes the process of meiosis?  
a) A sperm penetrates an egg to form a zygote.  
b) Cells with only half the original number of chromosomes are produced.  
c) Muscle cells turn to fat cells as a result of a lack of exercise.  
d) Skin cells are replaced as they wear away.
- \_\_\_ 44. Meiosis is often referred to as reduction division because  
a) the total number of cells is reduced after meiosis.  
b) the daughter cells are smaller than the mother cell.  
c) the total number of chromosomes is reduced by two.  
d) the daughter cells have half the number of chromosomes.
- \_\_\_ 45. New body cells (e.g., skin, heart, nerve) are produced by  
a) meiosis.  
b) fertilization.  
c) mitosis.  
d) eggs.
- \_\_\_ 46. The order which chromosomes line up at the equator during Meiosis I is random. What term do we have to describe this event?  
a) genetic diversity  
b) independent arrangement  
c) crossing over  
d) independent assortment.

- \_\_\_\_\_ 47. Segments of DNA that are parts of non-sister chromatids are sometimes exchanged in a process referred to as
- a) gene swapping.
  - b) crossing over.
  - c) DNA exchange.
  - d) chromatid mutation.
- \_\_\_\_\_ 48. A cell that has two sets of chromosomes is described as being
- a) haploid.
  - b) diploid.
  - c) complete.
  - d) zygote.
- \_\_\_\_\_ 49. A cell that has one set of chromosomes, which were contributed from a single parent, is described as being
- a) diploid.
  - b) fertilized.
  - c) complete.
  - d) haploid.
- \_\_\_\_\_ 50. After fertilization occurs, the chromosomes from one parent match up with the chromosomes from the other parent. These matching chromosomes are described as
- a) mated.
  - b) homologous.
  - c) partnered.
  - d) offspring.



## Mitosis & Meiosis Practice Test Answer Section

### MODIFIED TRUE/FALSE

1. ANS: T PTS: 1 DIF: Easy  
OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis KEY: interphase | cell cycle
2. ANS: T PTS: 1 DIF: Average  
OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis KEY: interphase | cell cycle
3. ANS: T PTS: 1 DIF: Average  
OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis KEY: mitosis
4. ANS: T PTS: 1 DIF: Difficult  
OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis KEY: mitosis | chromatids
5. ANS: F, centromere  
  
PTS: 1 DIF: Average OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis  
KEY: mitosis | chromatids | centriole | centromere
6. ANS: F, and  
  
PTS: 1 DIF: Average OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis  
KEY: cell cycle | proteins
7. ANS: T PTS: 1 DIF: Average  
OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis KEY: cancer
8. ANS: F, not specialized, so they cannot take over  
  
PTS: 1 DIF: Average OBJ: Section 5.1 TOP: The Cell Cycle and Mitosis  
KEY: cancer | specialized
9. ANS: T PTS: 1 DIF: Average  
OBJ: Section 6.1 TOP: Meiosis KEY: gamete | chromosome
10. ANS: T PTS: 1 DIF: Easy  
OBJ: Section 6.1 TOP: Meiosis KEY: meiosis | gamete
11. ANS: F, haploid  
  
PTS: 1 DIF: Average OBJ: Section 6.1 TOP: Meiosis  
KEY: gamete | diploid | haploid
12. ANS: T PTS: 1 DIF: Average  
OBJ: Section 6.1 TOP: Meiosis KEY: chromosomes | homologous | meiosis | zygote

### MULTIPLE CHOICE

13. ANS: D PTS: 1 DIF: Average OBJ: Section 5.1  
LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cancer | mutation | genetic
14. ANS: A PTS: 1 DIF: Easy OBJ: Section 5.1  
LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: chromosomes | nucleus
15. ANS: A PTS: 1 DIF: Easy OBJ: Section 5.1  
LOC: LS-R-01 TOP: The Cell Cycle and Mitosis  
KEY: nucleus | deoxyribonucleic acid | DNA

16. ANS: A PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: mitosis
17. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: mitosis
18. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: mitosis
19. ANS: A PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cell cycle | mitosis
20. ANS: B PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cytokinesis
21. ANS: B PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis  
 KEY: mitosis | early prophase | nucleolus | nuclear membrane
22. ANS: B PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: mitosis
23. ANS: B PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: telophase | mitosis
24. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: anaphase | mitosis
25. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: prophase | mitosis
26. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cell cycle | interphase
27. ANS: D PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis  
 KEY: cell cycle | interphase | mitosis | cytokinesis
28. ANS: C PTS: 1 DIF: Easy OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: growth | interphase
29. ANS: A PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: chromosomes | metaphase
30. ANS: B PTS: 1 DIF: Easy OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: mitosis | proteins | spindle fibres
31. ANS: D PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cell cycle | DNA
32. ANS: C PTS: 1 DIF: Average OBJ: Section 5.1  
 LOC: LS-R-01 TOP: The Cell Cycle and Mitosis KEY: cell cycle | mutation | proteins
33. ANS: B PTS: 1 DIF: Average OBJ: Section 6.2  
 LOC: LS-R-03 TOP: Sexual Reproduction KEY: sexual reproduction
34. ANS: D PTS: 1 DIF: Easy OBJ: Section 6.1  
 LOC: LS-R-01 TOP: Meiosis KEY: inherit | genes
35. ANS: C PTS: 1 DIF: Average OBJ: Section 6.1  
 LOC: LS-R-01 TOP: Meiosis KEY: meiosis
36. ANS: A PTS: 1 DIF: Easy OBJ: Section 6.1  
 LOC: LS-R-01 TOP: Meiosis KEY: chromosomes
37. ANS: C PTS: 1 DIF: Easy OBJ: Section 6.1  
 LOC: LS-R-01 TOP: Meiosis KEY: gametes | meiosis
38. ANS: C PTS: 1 DIF: Easy OBJ: Section 6.1  
 LOC: LS-R-01 TOP: Meiosis KEY: chromosomes | sperm

39. ANS: D                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: gene | DNA | protein
40. ANS: D                   PTS: 1                   DIF: Average           OBJ: Section 6.2  
 LOC: LS-R-03           TOP: Sexual Reproduction  
 KEY: sexual reproduction | gamete | chromosome
41. ANS: D                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | chromosomes
42. ANS: B                   PTS: 1                   DIF: Easy               OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | sperm | egg
43. ANS: B                   PTS: 1                   DIF: Difficult          OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | chromosomes
44. ANS: D                   PTS: 1                   DIF: Difficult          OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | chromosomes
45. ANS: C                   PTS: 1                   DIF: Easy               OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: mitosis
46. ANS: D                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: mitosis
47. ANS: B                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | cross over
48. ANS: B                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | diploid | chromosomes
49. ANS: D                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: meiosis | haploid | chromosomes
50. ANS: B                   PTS: 1                   DIF: Average           OBJ: Section 6.1  
 LOC: LS-R-01           TOP: Meiosis           KEY: fertilization | chromosomes | homologous