

Meiosis Quiz Answer Key PDF

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What is the chromosome number in human gametes?

A. 23 ✓

C. 69

D. 92

C. 46

Which of the following is not a stage of meiosis?

A. Interphase

D. Telophase III ✓

C. Metaphase II

C. Prophase II

In which phase do homologous chromosomes separate?

A. Prophase I

C. Anaphase I ✓

D. Telophase I

C. Metaphase I

How many haploid cells are produced at the end of meiosis?

A. One

D. Four ✓

C. Three

D. Two

Which of the following processes contributes to genetic variation during meiosis?

A. DNA replication

C. Independent assortment ✓

D. Cell growth

C. Cytokinesis

During which phase of meiosis does crossing over occur?

A. Prophase I ✓

C. Anaphase I

D. Telophase I

C. Metaphase I

What is the result of nondisjunction during meiosis?

A. Normal gametes

C. Genetic disorders ✓

D. Increased cell size

C. Identical daughter cells

Illustrate the stages of meiosis and describe the key events in each stage.

A. Meiosis has one stage.

C. Meiosis consists of two main stages. ✓

D. Meiosis occurs only in plants.

C. Meiosis is identical to mitosis.

Explain the significance of crossing over in meiosis.

A. It decreases genetic diversity.

C. It has no effect on genetic diversity.

D. It only occurs in plants.

C. It increases genetic diversity. ✓

Describe the process of independent assortment and its role in genetic variation.

A. It occurs during Anaphase II.

C. It has no effect on genetic variation.

D. It only occurs in plants.

C. It contributes to genetic variation. ✓

What are the main differences between Meiosis I and Meiosis II?

A. Meiosis I produces diploid cells; Meiosis II produces haploid cells.

C. Meiosis I is a reductional division; Meiosis II is an equational division. ✓

D. Meiosis I occurs in somatic cells; Meiosis II occurs in gametes.

C. Meiosis I and Meiosis II are identical.

How does meiosis contribute to evolution?

A. It decreases genetic diversity.

C. It has no effect on evolution.

D. It only occurs in plants.

C. It increases genetic diversity. ✓

Discuss the potential consequences of errors during meiosis.

A. It leads to normal gametes.

C. It causes genetic disorders. ✓

D. It increases cell size.

C. It results in identical daughter cells.

What is the primary purpose of meiosis?

A. Cell repair

C. Sexual reproduction ✓

D. Protein synthesis

C. Asexual reproduction

Which of the following occur during Prophase I of meiosis? (Select all that apply)

A. Chromosome condensation ✓

C. Separation of sister chromatids

D. Formation of tetrads ✓

C. Cross over ✓

What are the key differences between meiosis and mitosis? (Select all that apply)

- A. Meiosis involves two divisions; mitosis involves one. ✓**
- C. Meiosis results in genetic variation; mitosis does not. ✓**
- D. Meiosis occurs in gametes; mitosis occurs in somatic cells. ✓**
- C. Meiosis produces diploid cells; mitosis produces haploid cells.

Which of the following are true about homologous chromosomes? (Select all that apply)

- A. They are identical copies.
- C. They can exchange genetic material. ✓**
- D. They separate during mitosis.
- C. They pair up during meiosis. ✓**

What factors contribute to genetic diversity in meiosis? (Select all that apply)

- A. Cross over ✓**
- C. Independent assortment ✓**
- D. Random fertilization ✓**
- C. DNA replication

Which phases are part of Meiosis II? (Select all that apply)

- A. Prophase II ✓**
- C. Anaphase II ✓**
- D. Telophase I
- C. Metaphase II ✓**

What are the outcomes of meiosis? (Select all that apply)

- A. Four genetically identical cells
- C. Two diploid cells
- D. Four haploid cells ✓**
- C. Four genetically diverse cells ✓**