

1. Each person has 23 chromosomes from their father and 23 from their mother. Which statement is not true?

(A) When chromosomes duplicate in anticipation of mitosis, the original and duplicate chromatids are attached to each other at the centromere.

(B) A human cell with 23 pairs of homologous chromosomes is haploid.

(C) When each chromosome replicates into two sister chromatids, together the sister chromatids are called a chromosome.

(D) When the two chromatids separate during mitosis, each chromatid is now called a chromosome.

2. The first place during meiosis that gene mixing occurs is during _____.

(A) prophase of Meiosis I

(B) prophase of Meiosis II

(C) metaphase of Meiosis I

(D) metaphase of Meiosis II

3. Synapsis occurs during which phase of Meiosis I?

(A) prophase

(B) metaphase

(C) anaphase

(D) telophase

4. Random alignment of chromosomes occurs during which phase of Meiosis I?

(A) prophase

(B) metaphase

(C) anaphase

(D) telophase

5. Meiosis is used for reproduction, not simply to replace old, dead, or damaged cells. The reason meiosis is used for reproduction is that _____.

(A) Meiosis is faster than mitosis.

(B) Meiosis checks for mistakes in DNA replication.

(C) Meiosis mixes up the genes being passed along.

(D) Meiosis requires only half the chromosomes.

6. Which statement is not true about Meiosis I?

(A) Each pair of sister chromatids is split apart at the centromere.

(B) Homologous chromosomes are pulled apart.

(C) The cell undergoing meiosis I is diploid.

(D) Each homologous chromosome consists of sister chromatids.

7. Which statement about meiosis is not true?

- (A) A cell at the end of meiosis I has the same number of chromosomes as a cell at the end of Meiosis II.
- (B) The first time sister chromatids separate is in anaphase of meiosis II.
- (C) The first time homologous chromosomes separate is in anaphase of meiosis I.
- (D) During anaphase of Meiosis I, homologous chromosomes are pulled by microtubules to a polar body at each end of the cell.**

8. Mixing of genes occurs during all of the following except _____.

- (A) prophase of Meiosis I
- (B) prophase of Meiosis II**
- (C) metaphase of Meiosis I
- (D) metaphase of Meiosis II

9. Compared to eukaryotic DNA, bacterial DNA _____.

- (A) is a single stranded loop**
- (B) undergoes the four steps of mitosis in less than half the time that eukaryotic DNA takes
- (C) is also diploid
- (D) attaches to spindles directly

10. Ferns are ancient plants that use both sexual and asexual reproduction. The sexual phase whereby sperm cells swim through water to reach the female ovum occurs in tiny droplets of water collecting along the undersurface of a tiny fern plant called _____, growing in a warm shaded area of the forest less than an inch off the ground.

- (A) a rhizome
- (B) a stolon
- (C) a spore
- (D) a prothallus**