

Name: **ANSWER KEY**

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Genetics and Heredity Unit Study Guide/Practice Test 2013-2014

Section 1 Cell Division

What are the two types of cell division that we have discussed in this unit?

1. **Mitosis**

2. **Meiosis**

Complete the following chart:

Type of cell division	Mitosis	Meiosis
Cell starts out as a body (somatic) or sex cell?	Somatic cell	Somatic cell
Function of this process	To create more somatic cells. Growth and repair of body cells, tissues, and organs.	Production of gametes (egg and sperm)
Initial cell is haploid or diploid?	Diploid	Diploid
Nucleus divides once or twice?	Once	Twice
Number of daughter cells at end of cell division?	2	4
End product is a body (somatic) cell or gamete?	Somatic cells	Gametes
End product is diploid or haploid	Diploid	Haploid
If there are 3 pairs of homologous chromosomes in the cell at the beginning of cell division, how many chromosomes will be in each cell at the end of cell division?	6	3

1. A human body cell contains **23** pairs of **homologous** chromosomes or a total of **46** chromosomes.

****Note: Homologous chromosomes are pairs of chromosomes in which one chromosome comes from the mother and one comes from the father. Homologous chromosomes are similar but not identical. Each carries the same genes in the same order, but the alleles for each trait may not be the same.**

2. What occurs during mitotic cell divisions:

During mitosis and cell division, the chromosomes duplicate and then separate. At the end of mitosis, a new nucleus forms around each new set of chromosomes and then the cell divides in a process called cytokinesis. This creates two new identical daughter cells.

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