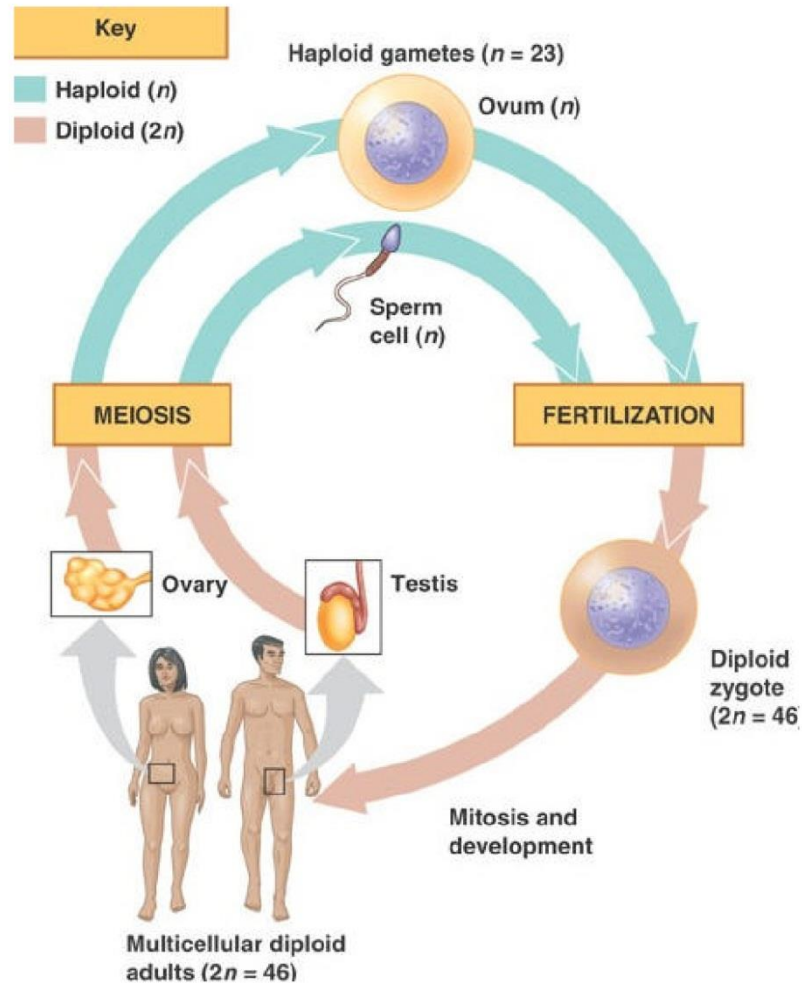


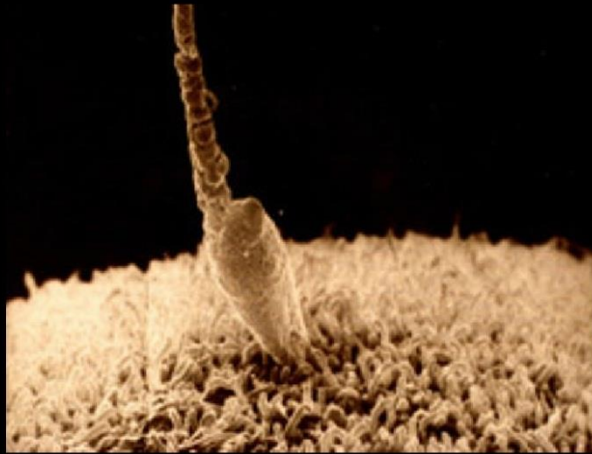
Cell Division in Sexual Reproduction: Meiosis

- Meiosis is the mechanism by which eukaryotic cells produce mature *sex cells or gametes*
- Meiosis produces four haploid cells (gametes)
- Meiosis involves partition of both cytoplasmic and nuclear structures
- Meiosis consists of Meiosis I and Meiosis II. Both phases are followed by cytokinesis.
- Meiosis I consists of four phases: prophase I, metaphase I, anaphase I, and telophase I.
- Meiosis II consists of four phases: prophase II, metaphase II, anaphase II, and telophase II.
- *Oogenesis* is the production of mature eggs; *spermiogenesis* is the production of mature sperm cells

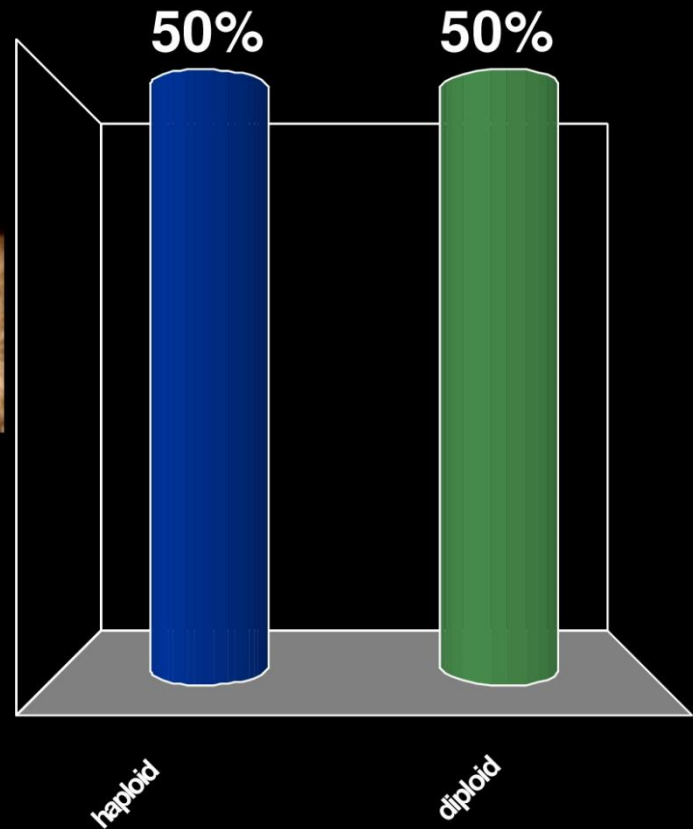
Meiosis and Sexual Reproduction



Mature gametes are:

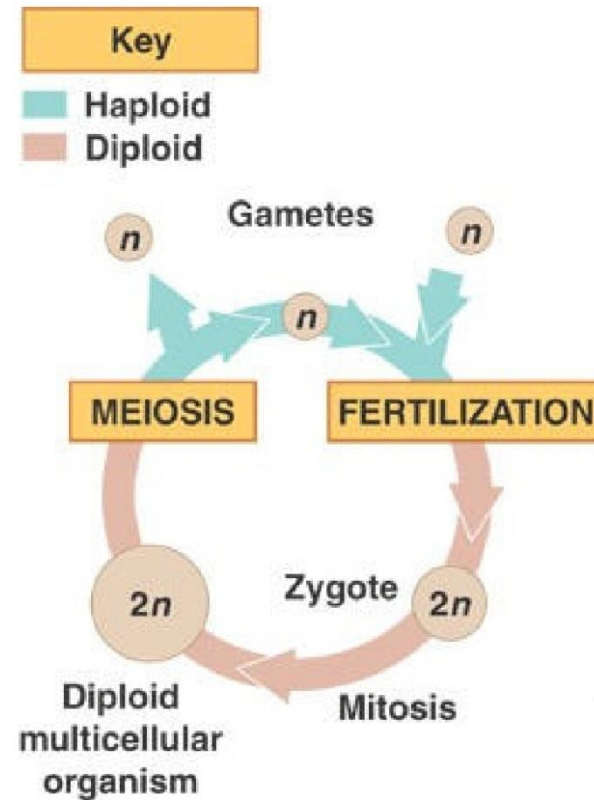


1. haploid
2. diploid



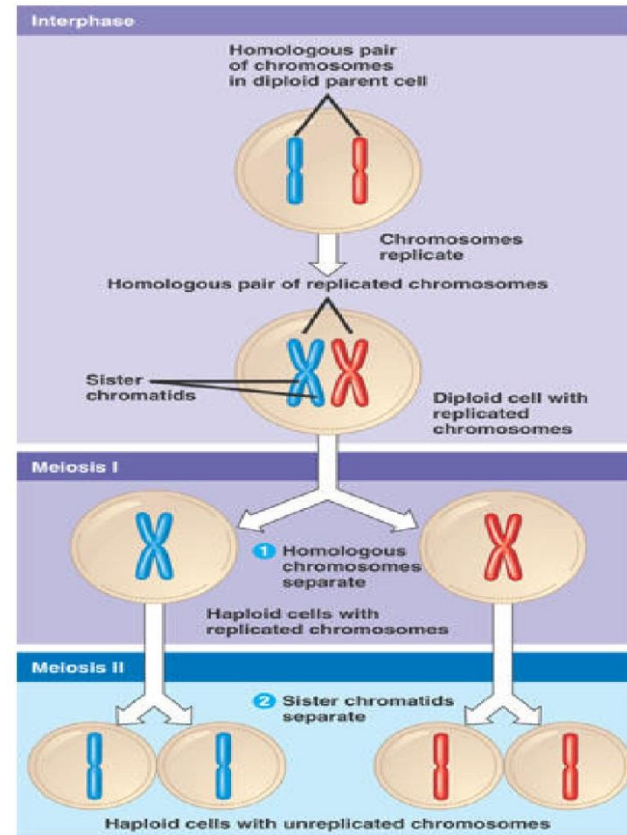
Meiosis and Sexual Reproduction

- Mature gametes (eggs and sperm cells) are produced after meiosis
- Mature gametes (haploid) carry on fertilization to produce a *zygote* (diploid).
- Meiosis ensures that the number of chromosomes is maintained from parents to offspring

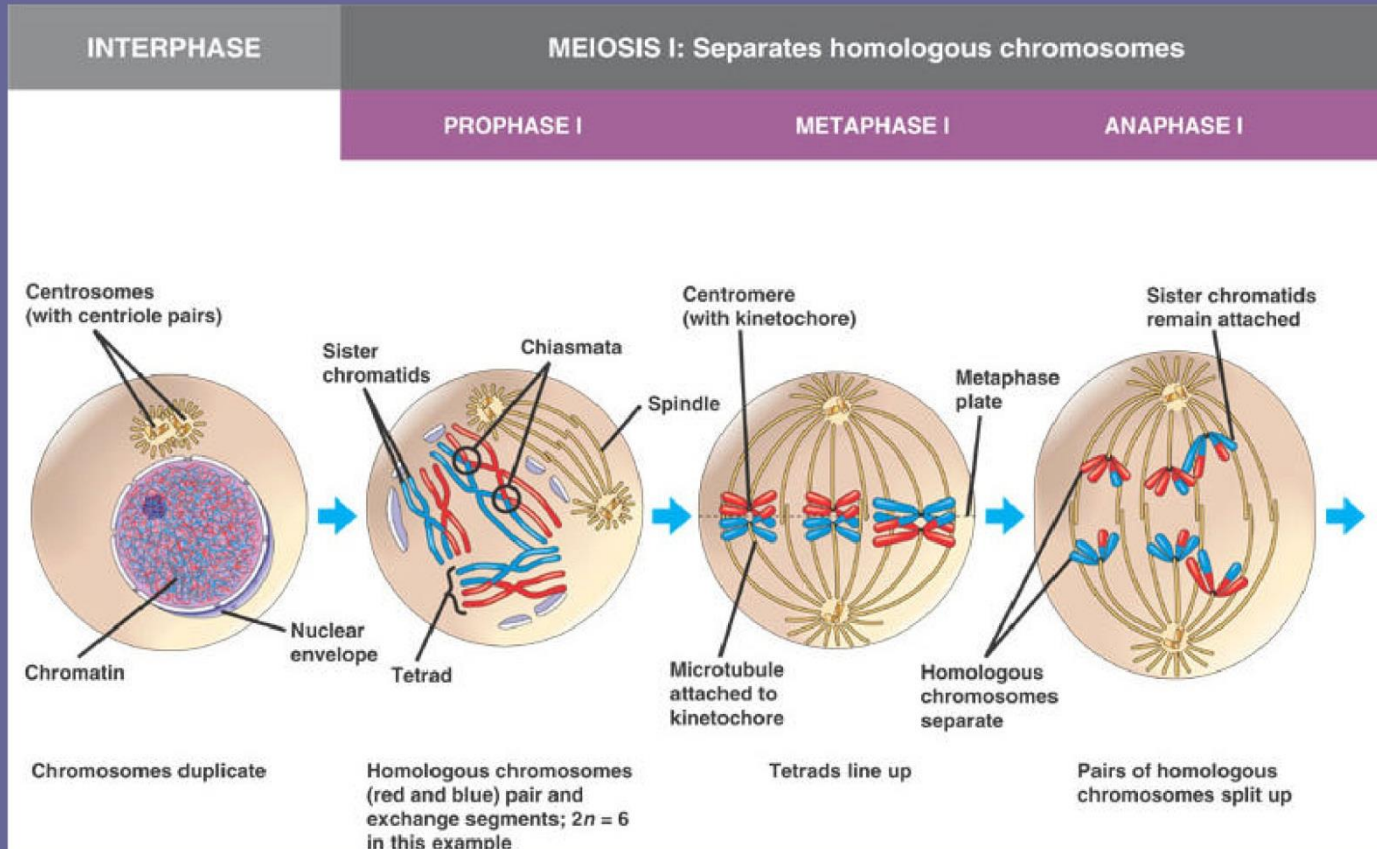


Meiosis: An Overview

- Meiosis consists of Meiosis I and Meiosis II. Cytokinesis follows after each phase

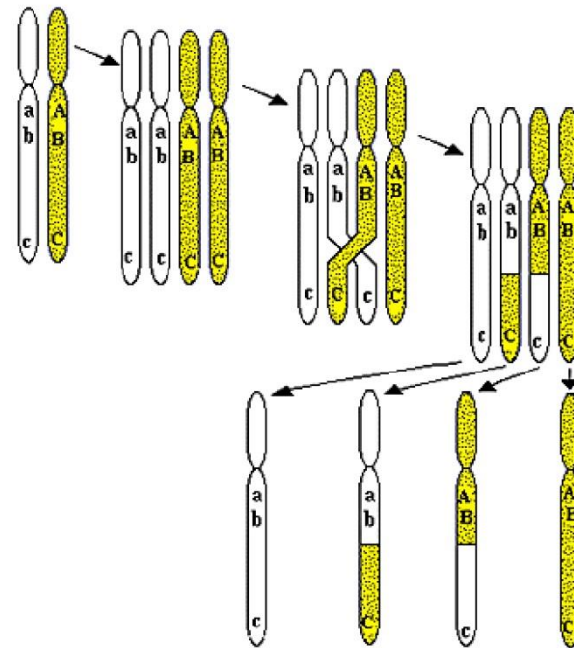


Phases of Meiosis I



Crossing Over (Prophase I)

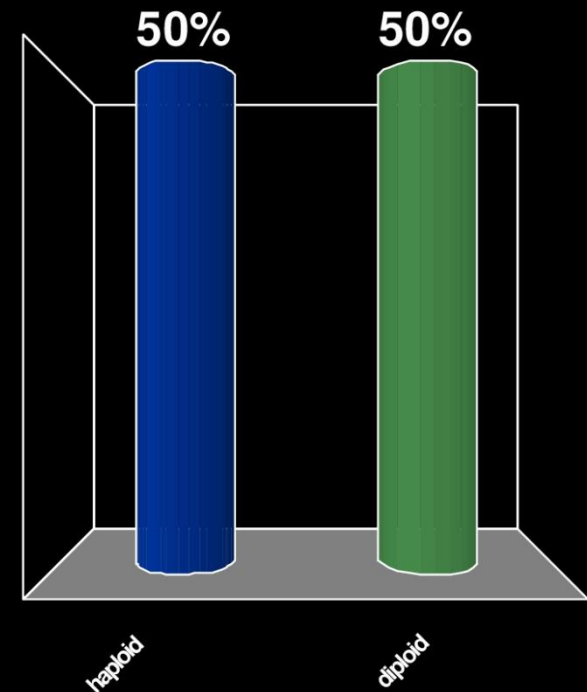
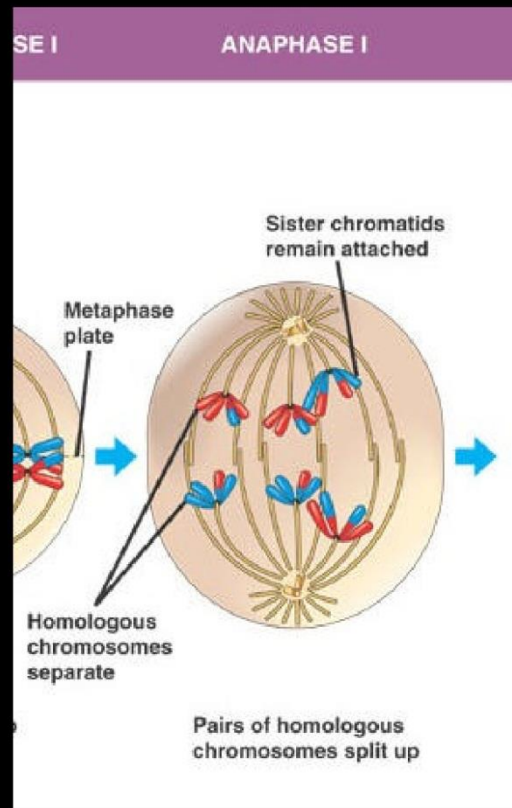
- Crossing over is the interchange of genetic material between homologous chromosomes
- Crossing over occurs during prophase I
- After crossing over, sets of four chromosomes or *tetrads* are formed



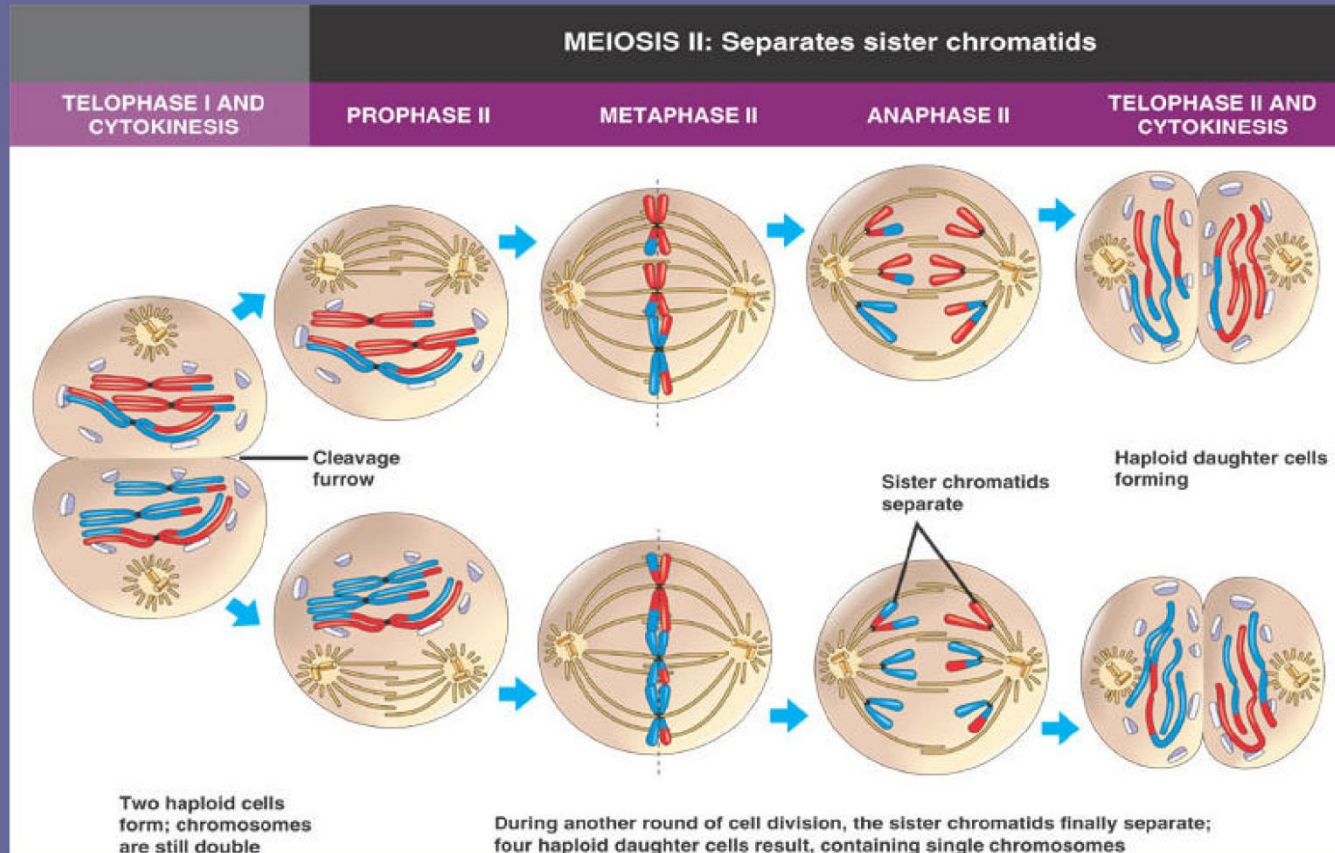
Crossing-over and recombination during meiosis

At the end of anaphase I, is the cell haploid or diploid?

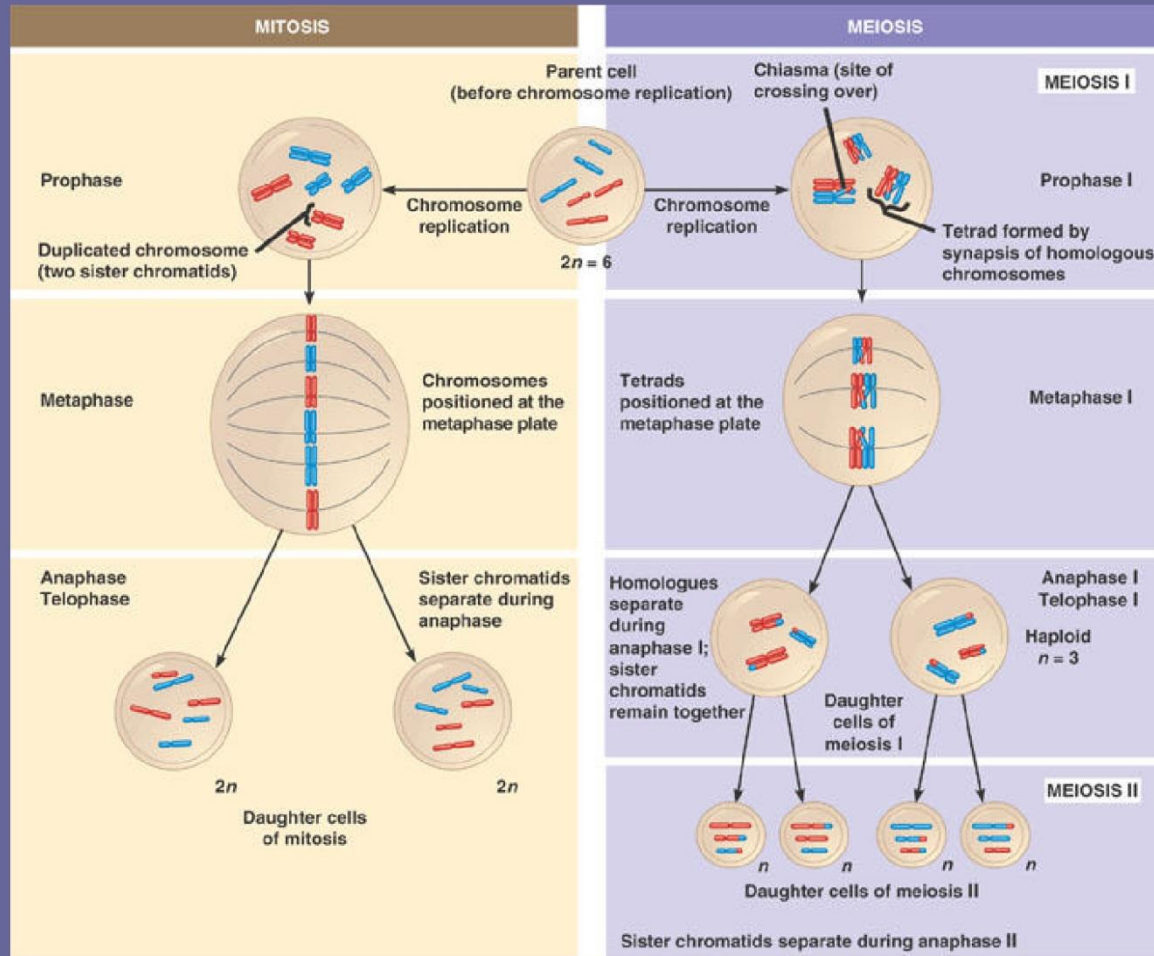
1. haploid
2. diploid



Phases of Meiosis II

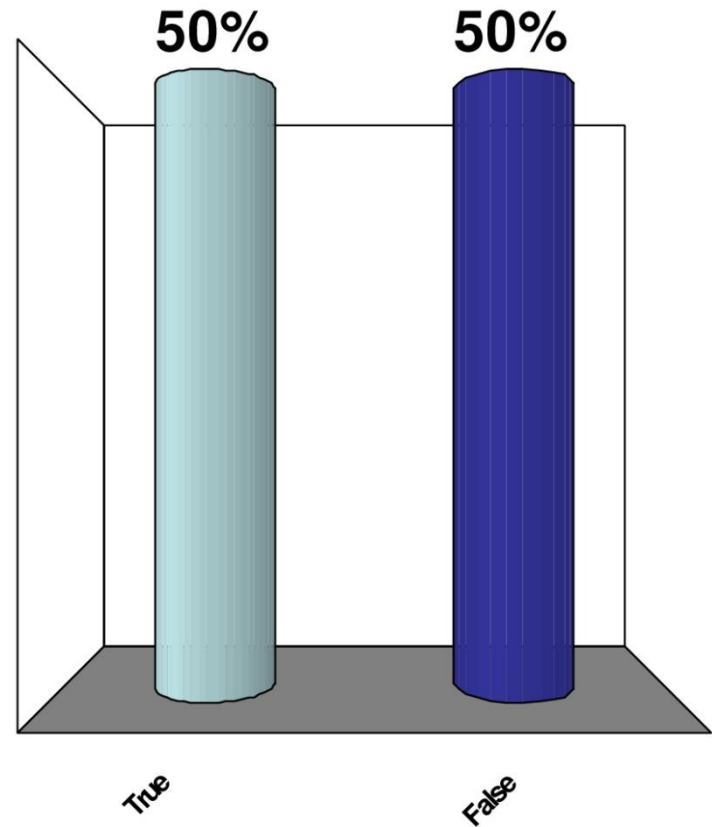


Mitosis and Meiosis Compared



At the end of meiosis I, two haploid cells are produced

1. True
2. False



At the end of meiosis II, two haploid cells (gametes) are produced

1. True
2. False

