

**Answer Questions**

On the lines provided, under the appropriate number of sections I (mitosis) and sections II, including cytokinesis in the parent organism.

- 1. 4<sup>th</sup> metaphase I, \_\_\_\_\_ kinetochore chromosomes lining in the center of the cell
- 2. 2<sup>nd</sup> metaphase I, \_\_\_\_\_ spindle fibers pull kinetochore pairs to ends of the cell
- 3. 4<sup>th</sup> metaphase II, \_\_\_\_\_ 4 haploid (2n) daughter cells form
- 4. 2<sup>nd</sup> metaphase \_\_\_\_\_ cells undergo a round of DNA replication
- 5. 1<sup>st</sup> metaphase II, \_\_\_\_\_ sister chromatids separate from each other
- 6. 4<sup>th</sup> metaphase II, \_\_\_\_\_ 4 haploid (2n) daughter cells form
- 7. 2<sup>nd</sup> metaphase I, \_\_\_\_\_ spindle fibers attach to the kinetochore-chromatid pairs
- 8. 4<sup>th</sup> metaphase II, \_\_\_\_\_ individual chromatids move to each end of the cell
- 9. 2<sup>nd</sup> metaphase I, \_\_\_\_\_ crossing-over (X) occurs

10. Compare the number and type of cells that result from mitosis vs. meiosis. Mitosis II diploid cells, that are somatic cell pairs that are not gametes and identical to each other and to the parent cell.

Meiosis makes 4 haploid cells that are gametes and are all different from each other and from the parent cell.

11. How do the genetic contents of cells resulting from mitosis and meiosis differ? Mitosis are identical, while meiosis is not identical.

12. If a diploid cell containing 20 chromosomes undergoes meiosis, how many chromosomes will each daughter cell have? 10

Draw each statement, then on the line write down the phase of mitosis or meiosis that the action occurs. If the action occurs in both, write both. This line can be done for you.

- 1. \_\_\_\_\_ metaphase I occurs: kinetochore chromosomes lining in the center of the cell
- 2. metaphase II occurs: metaphase occurs: \_\_\_\_\_ The individual chromosomes move apart.
- 3. metaphase I occurs: \_\_\_\_\_ spindle fibers pull kinetochore pairs to ends of the cell
- 4. metaphase II occurs: \_\_\_\_\_ 4 haploid (2n) daughter cells form
- 5. metaphase occurs and mitosis: \_\_\_\_\_ cells undergo a round of DNA replication
- 6. metaphase mitosis: metaphase II occurs (as pairs): \_\_\_\_\_ The chromosomes that separate the middle of the cell.
- 7. prophase I, Prophase II occurs: prophase mitosis \_\_\_\_\_ Chromosomes become visible.
- 8. metaphase mitosis: metaphase II occurs: \_\_\_\_\_ sister chromatids separate from each other
- 9. \_\_\_\_\_ metaphase I occurs: \_\_\_\_\_ 4 haploid (2n) daughter cells form
- 10. \_\_\_\_\_ metaphase II occurs: metaphase mitosis: \_\_\_\_\_ sister chromatids separate and individual chromosomes.
- 11. metaphase I and II occurs: metaphase mitosis: \_\_\_\_\_ Sister chromatids of chromosomes.
- 12. \_\_\_\_\_ prophase I occurs: \_\_\_\_\_ spindle fibers attach to the kinetochore-chromatid pairs
- 13. \_\_\_\_\_ metaphase II occurs: metaphase mitosis: \_\_\_\_\_ individual chromatids move to each end of the cell
- 14. prophase I and II occurs: prophase mitosis: \_\_\_\_\_ The nuclear envelope and the nuclear membrane breaks down.
- 15. \_\_\_\_\_ prophase II occurs: prophase mitosis: \_\_\_\_\_ Each chromosome is connected to spindle fibers.