

A&P 243

Unit 4 Work sheet

Mitosis/Meiosis

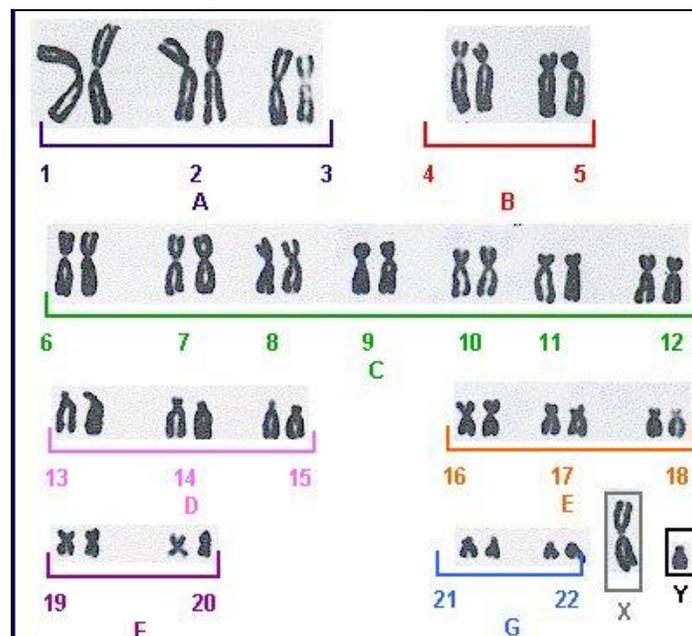
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The purpose of this work sheet is to make sure that you understand the organization and division of human chromosomes during **Mitosis, Meiosis1 and Meiosis 2**. You may recall from discussions from a portion of this class or a General Biology class, Mitosis is the cell division that replicates cell within the human body. Mitosis assures that daughter cells have the normal chromosomal number. Meiosis reduces the chromosome number during formation of gametes, Sperm or eggs.

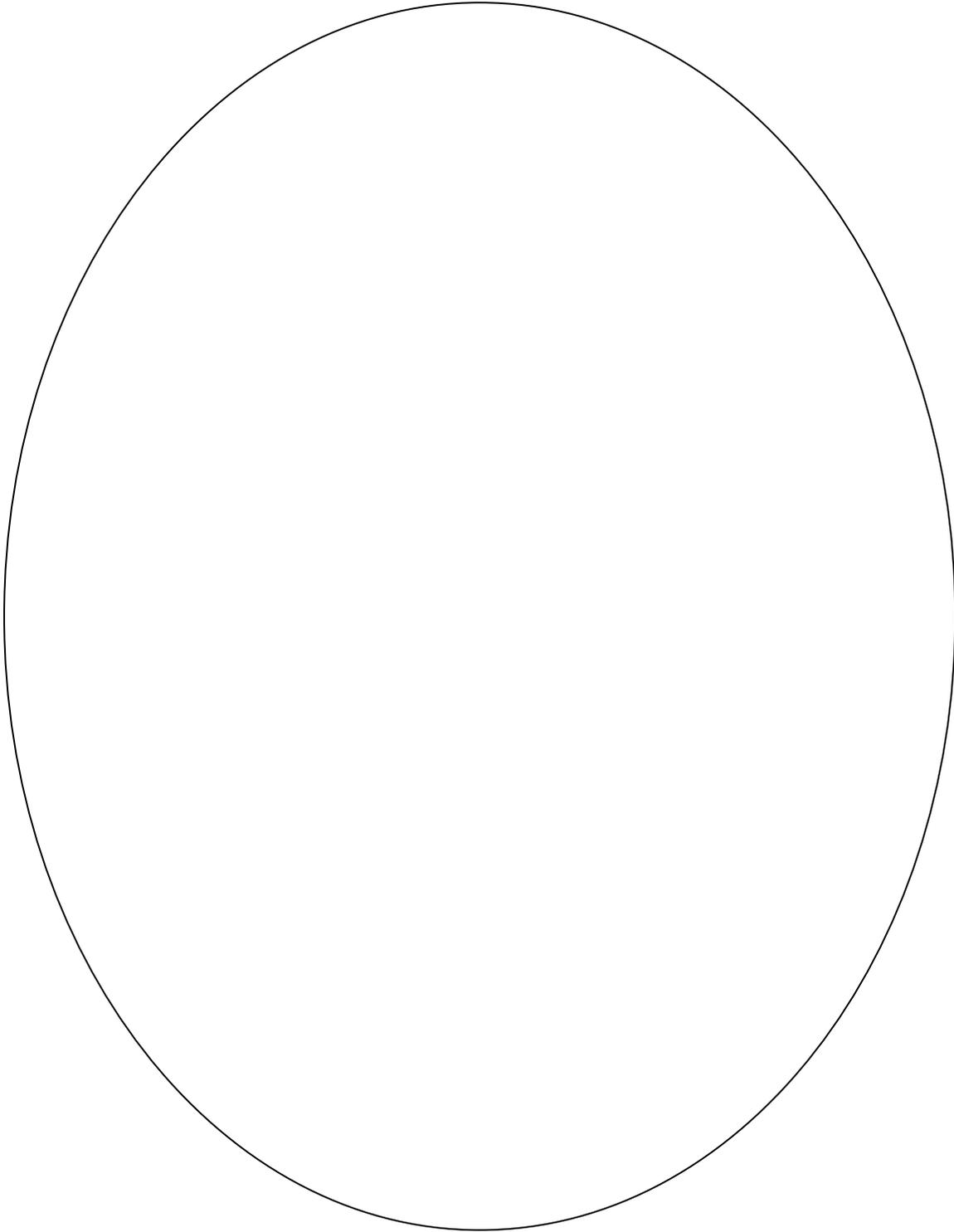
As you can see from the Kerotype below, Human cells have 46 chromosomes that are really 23 pairs of homologous chromosomes. For each chromosome you obtain one chromosome from your father and another copy from your mother. For this work sheet you should use a **red or pink pin or pencil** to indicate the chromosomes received from the **mother** and a **blue pin or pencil** to indicate chromosome received from the **father**. For example, on the kerotype below the **“X” would be colored pink** and the **“Y” chromosome would be coloring blue**, as would each other pair of chromosomes.

Also recall that DNA is duplicated during the “S” period of interphase. The chromosomes in the kerotype below consist of duplicated DNA, sister chromatids held together by the centromere.

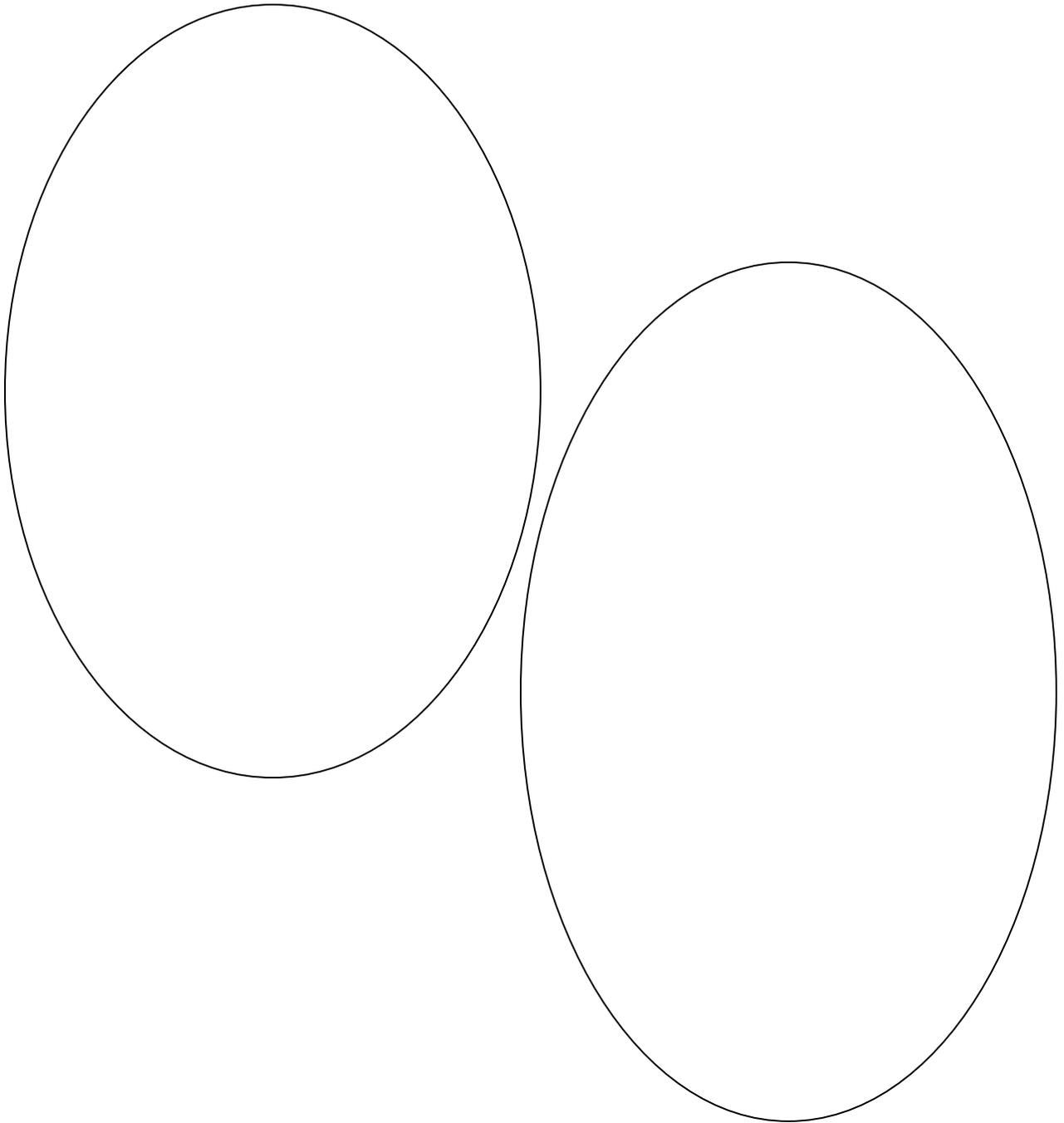
Using the Colored pins or pencils indicated above complete the following exercises as indicated in the directions by drawing the chromosomes.



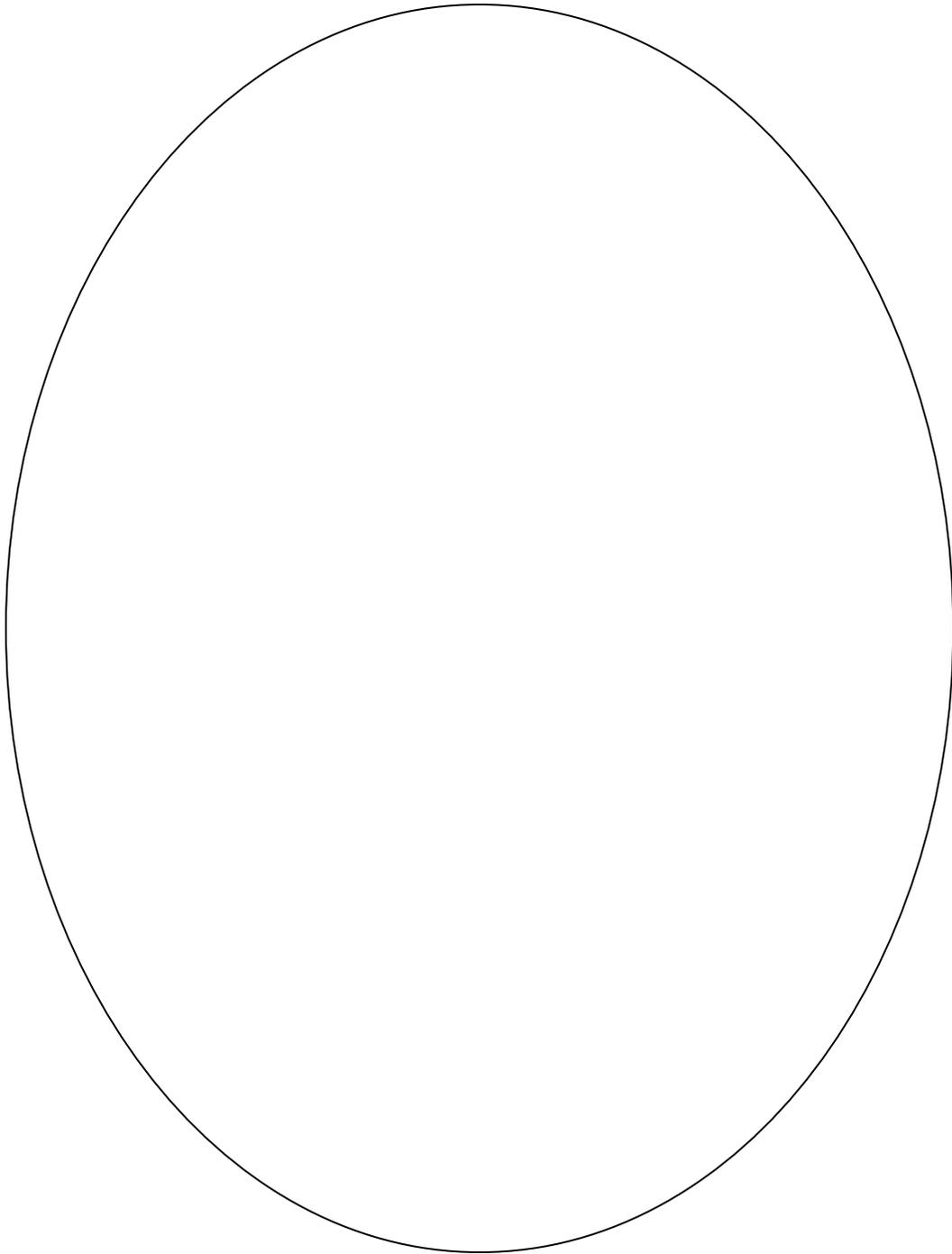
Exercise 1: Assume the “cell” below represents a *Human Spermatogonium*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*Metaphase*” of mitosis.



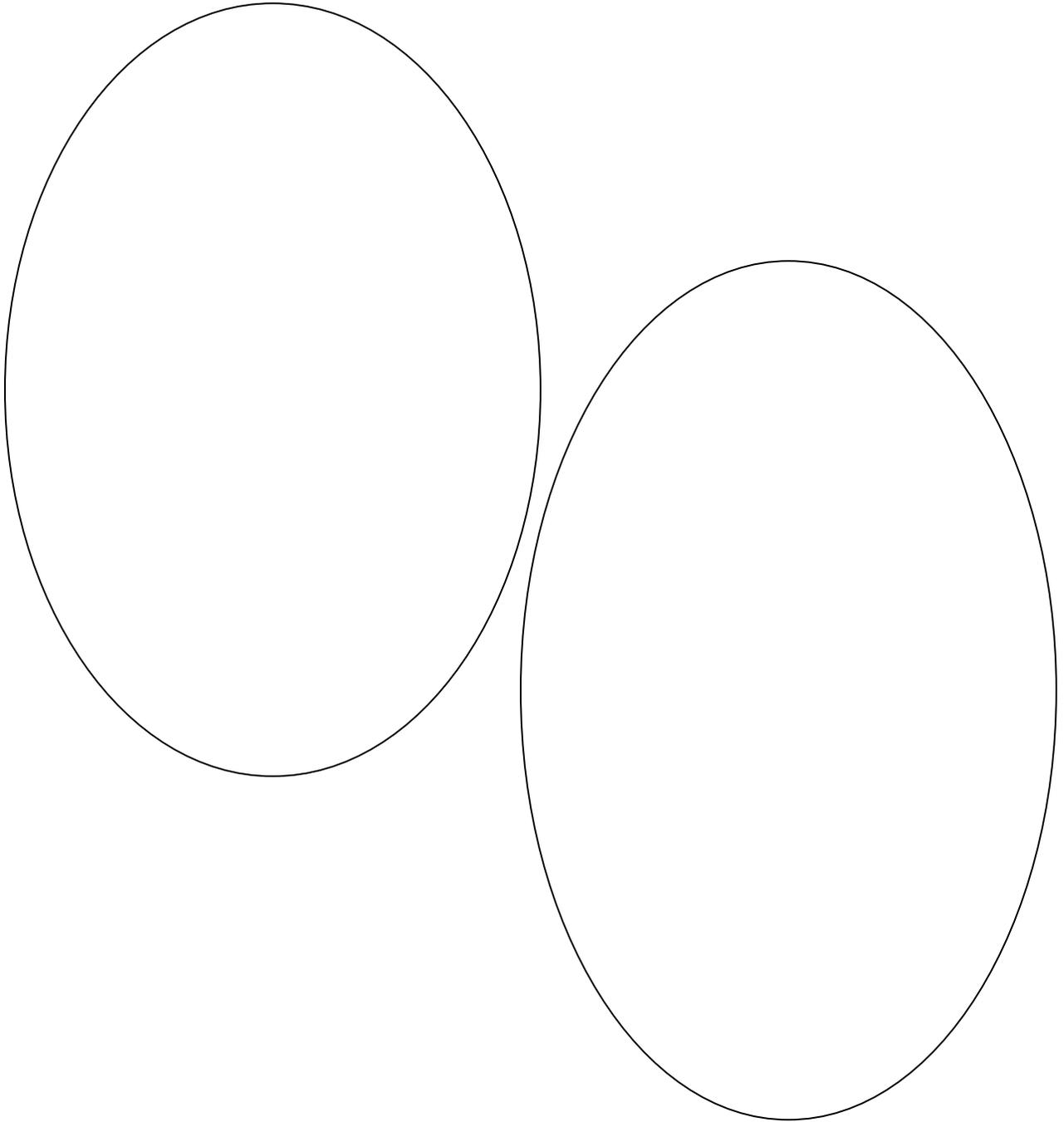
Exercise 2: Assume the “cells” below represents the *daughter cells* produced by *mitosis* of a *Human Spermatogonium*. Draw the chromosomes in place in the ‘cell’ below as they would appear in these daughter cells during *late telophase*.



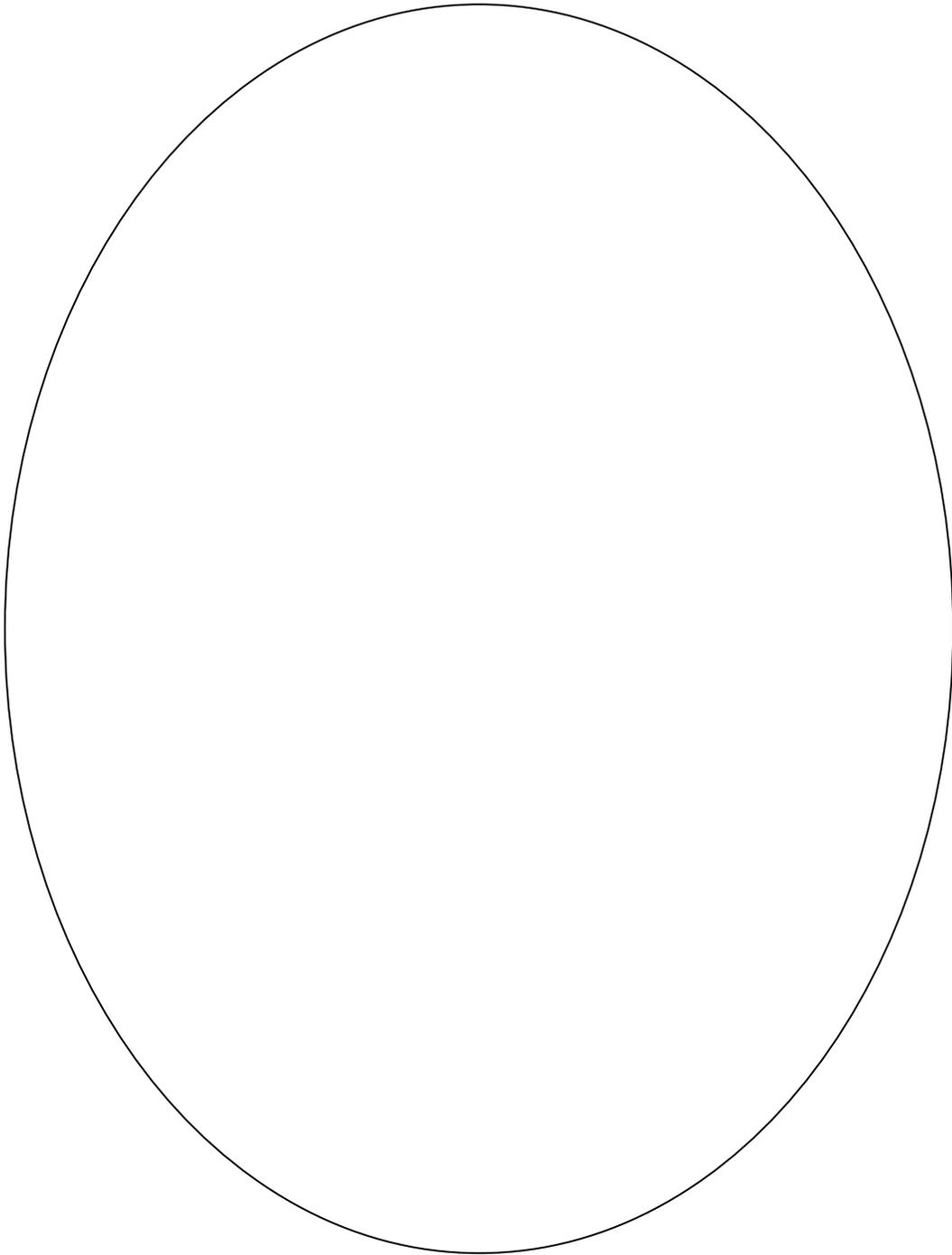
Exercise 3: Assume the “cell” below represents a *Human Primary Spermatocyte*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*Metaphase*” of *meiosis 1*.



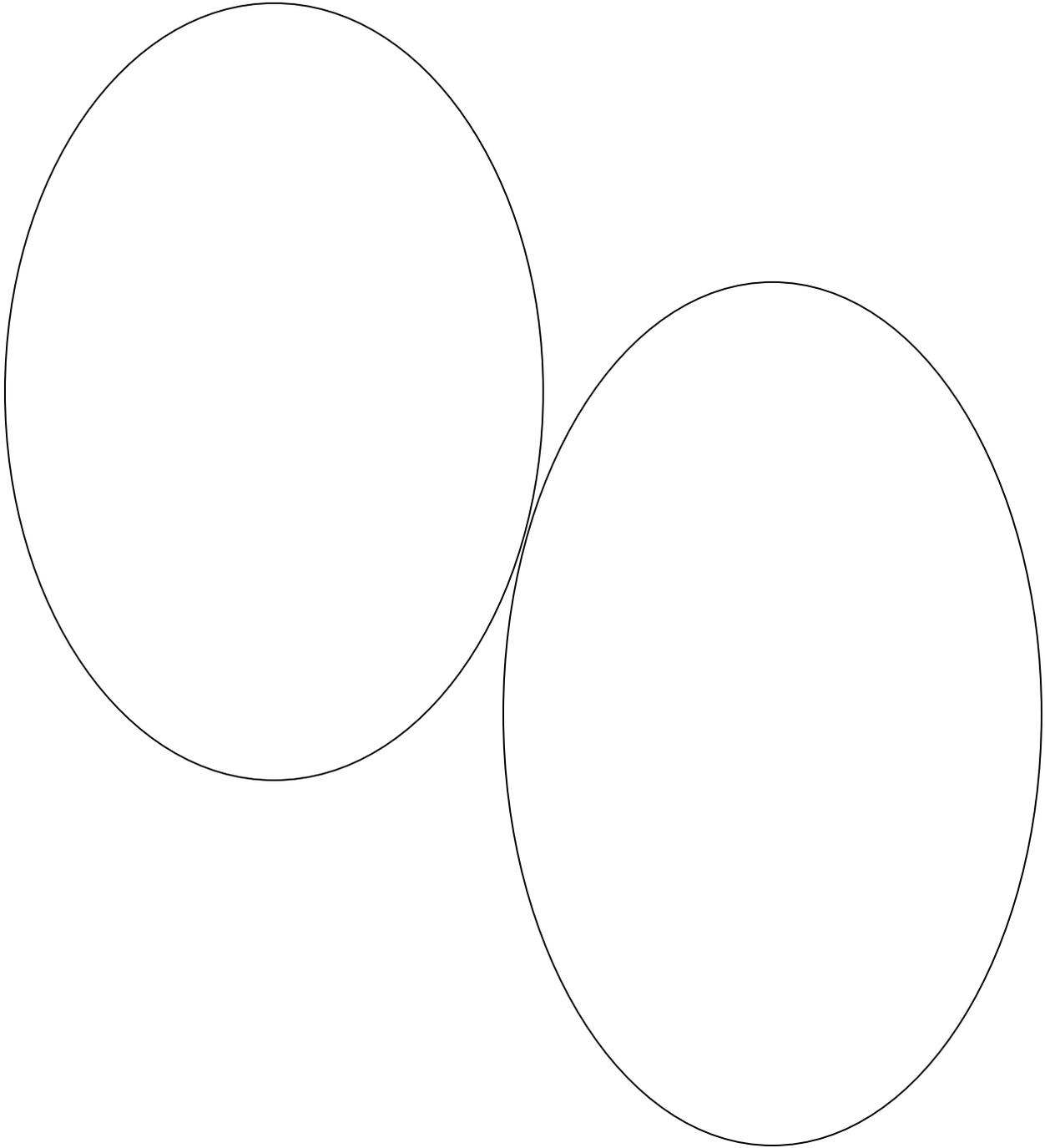
Exercise 4: Assume the “cells” below represents the *daughter cells or secondary spermatogonia* produced by *meiosis I*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*late telophase*” in these daughter cells.



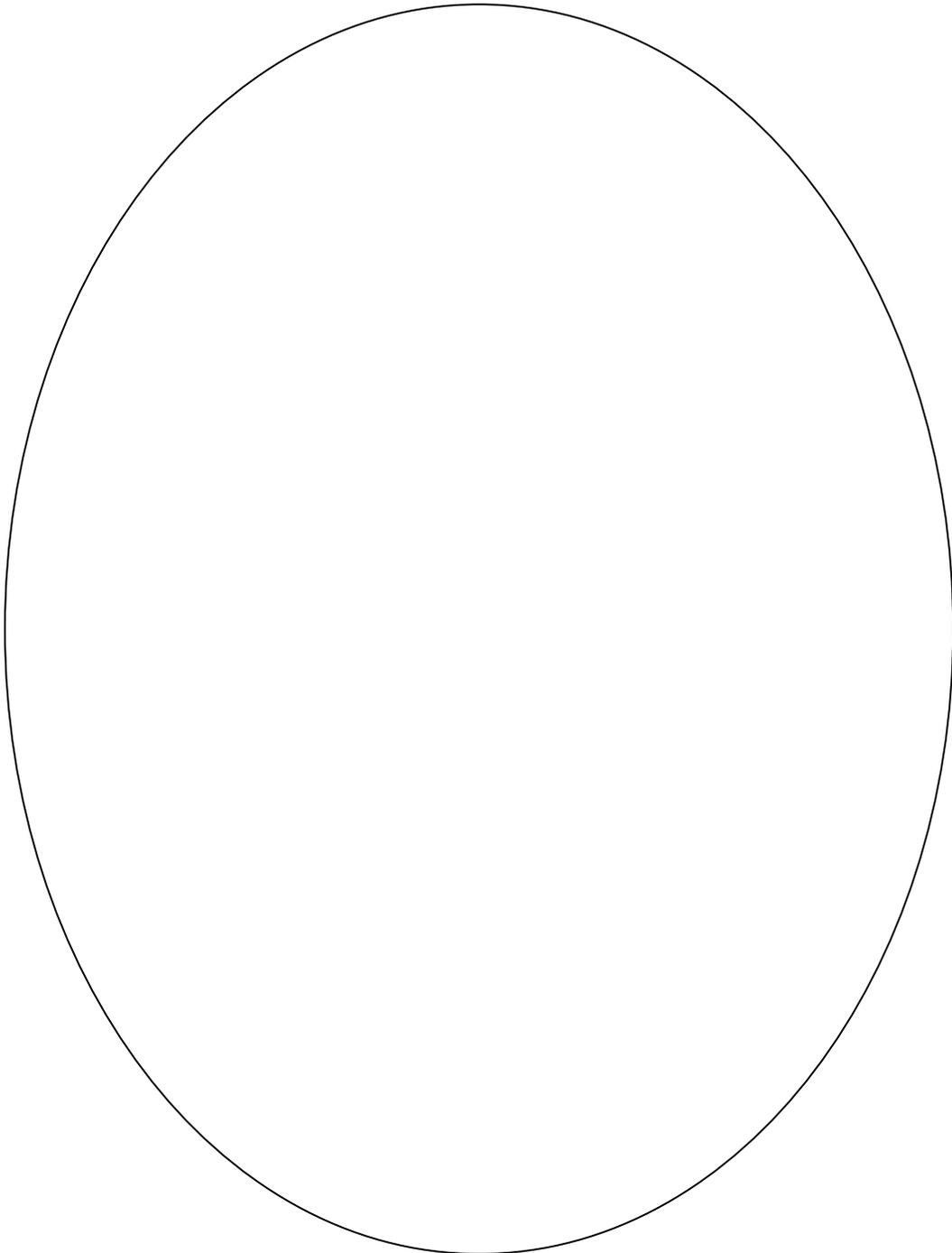
Exercise 5: Assume the “cell” below represents a *Human Secondary spermatocyte*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*Metaphase*” of *meiosis 2*.



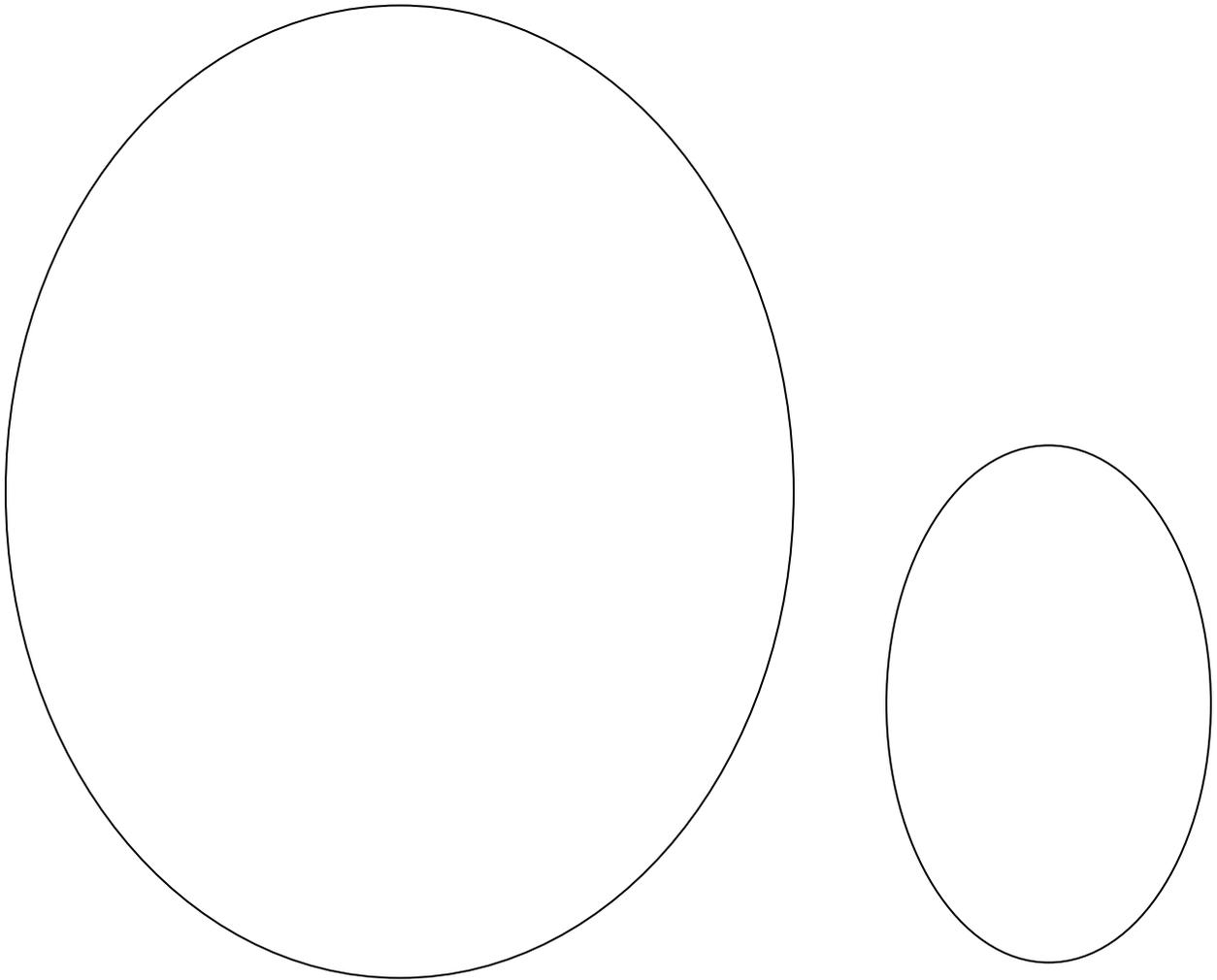
Exercise 6: Assume the “cells” below represents the *spermatids* produced by *meiosis 2* of a *Human Secondary Spermatocyte*. Draw the chromosomes in place in the *spermatids* below as they would appear during *late telophase of meiosis 2*.



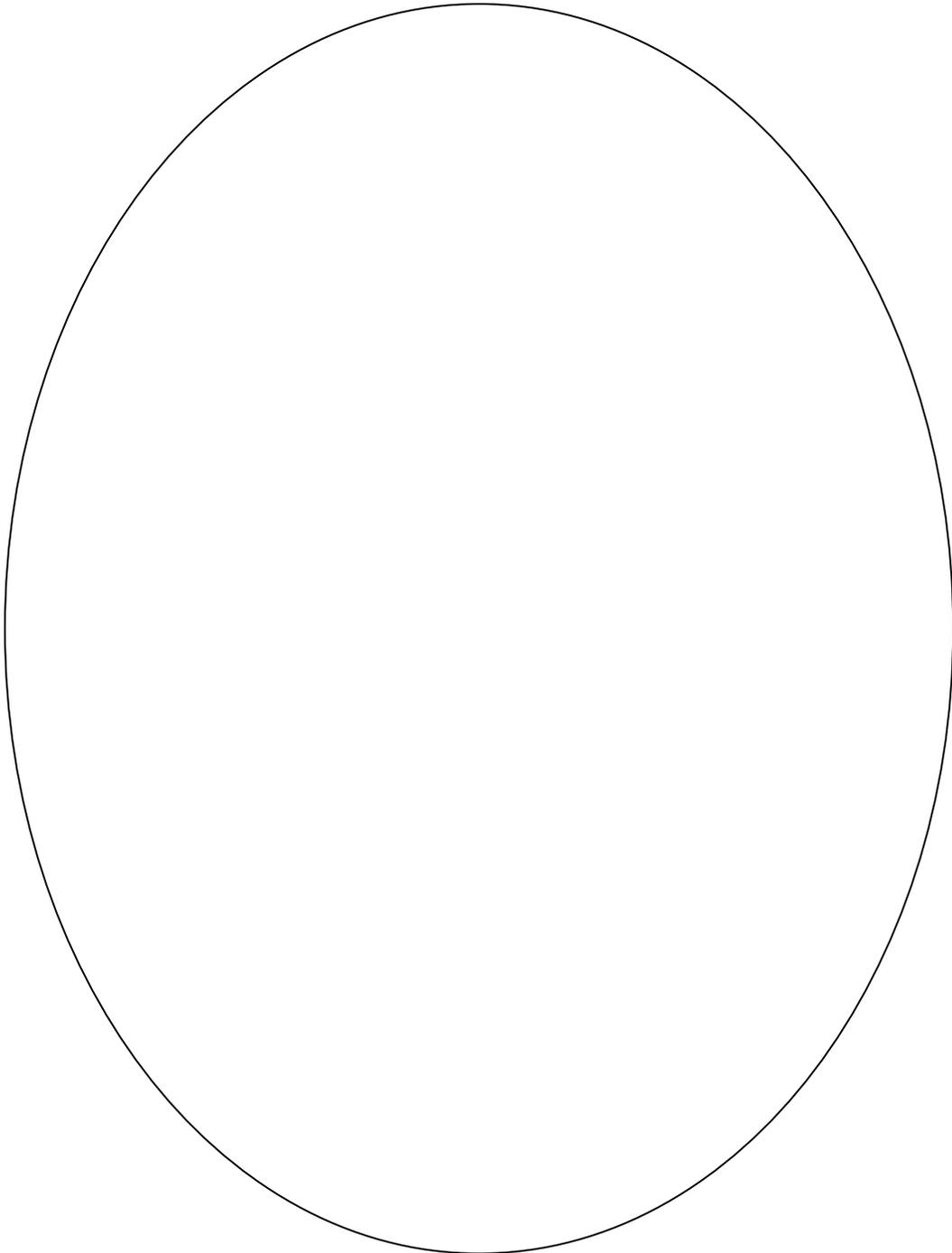
Exercise 7: Assume the “cell” below represents a *Human Primary Oocyte*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*Metaphase*” of *meiosis I*.



Exercise 8: Assume the “cells” below represents the *daughter cell or secondary oocyte* and *1st polar body* produced by *meiosis I*. Draw the chromosomes in place in the ‘cell’ below as they would appear in these *daughter cells*. Please *label* which of the cells below represents the *secondary oocyte and 1st polar body*.



Exercise 9: Assume the “cell” below represents a *Human secondary oocyte*. Draw the chromosomes in place in the ‘cell’ below as they would appear during “*Metaphase*” of *meiosis 2*.



Exercise 10: Assume the “cells” below represents the *daughter cell or oocyte* and *2nd polar body produced by meiosis 2*. Draw the chromosomes in place in the “cell” below as they would appear in these daughter cells. Please *label* which of the cells below represents the **oocyte** and *2nd polar body*.

