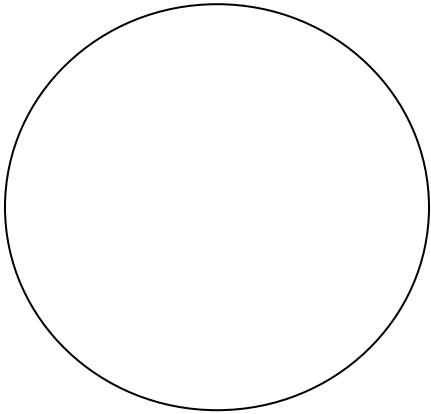
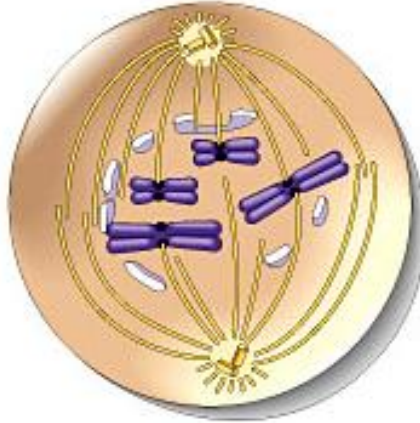
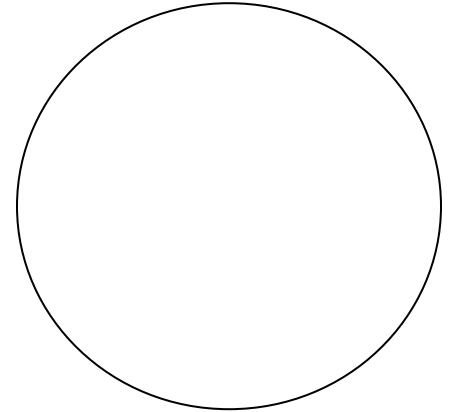


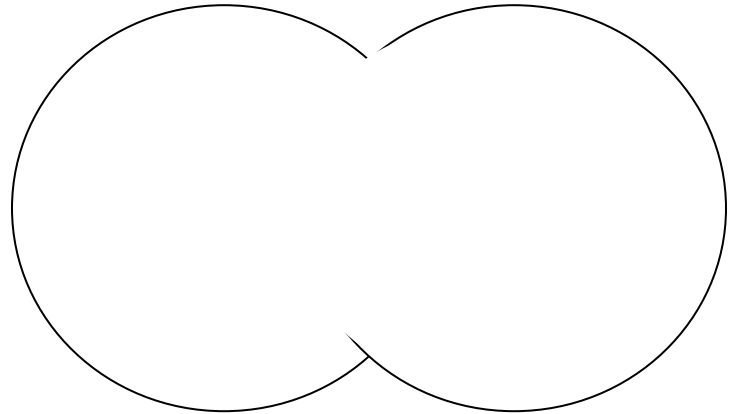
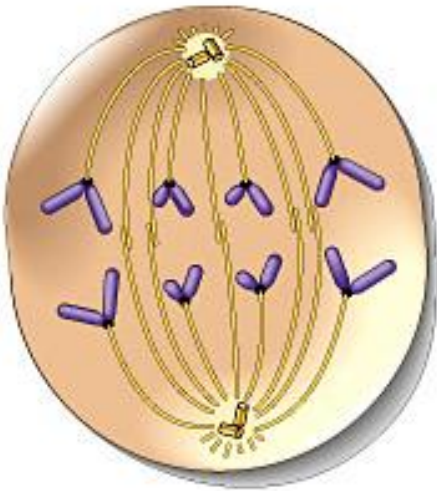
Mitosis Review BTR

1. List 4 reasons why Mitosis is needed or happens? (for humans or other organisms).
2. The following steps are in order. On the line below each cell, fill in the name of the step of Mitosis. On the blank cells, draw in the circle what SHOULD be happening at each step.









3. How many **TOTAL** chromosomes are needed to hold **ONE** human blueprint in a cell? _____
4. How many **TOTAL** gene codes are found in **ONE** human blueprint in a cell? _____
5. Explain the difference between a "single" and "double" chromosome?

Directions: MATCH each description to its corresponding term in the word bank.

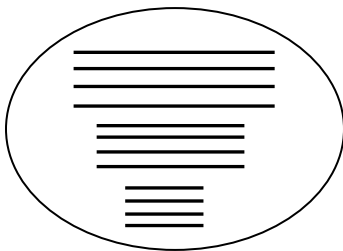
Cell Cycle Phases

- A = metaphase D = telophase / cytokinesis C = anaphase
 B = interphase E = prophase

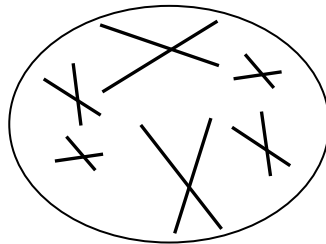
- _____ 6. Chromosomes line up single file in the middle of the cell along the equator
 _____ 7. Chromatin coils tightly into visible "double" chromosomes
 _____ 8. A cleavage furrow develops in animal cells and the cell eventually pinches in and splits
 _____ 9. Two centrioles separate to opposite poles of the cell and build a football-shaped spindle
 _____ 10. Growth happens as new cell parts are built and DNA replication occurs.
 _____ 11. DNA exists as chromatin protected by a nuclear membrane and the nucleolus is visible.
 _____ 12. Sister chromatids split apart forming 2 identical "single" chromosomes that are pulled to the poles at each side of the cell.
 _____ 13. Chromosomes uncoil back into chromatin.
 _____ 14. 90% of the cell's life cycle is in this stage.
 _____ 15. The spindle disappears while the nuclear membrane and nucleolus reappear.
 _____ 16. Spindle fibers retract toward the poles, ripping the "double" chromosomes in half at the centromere.
 _____ 17. Chromosomes attach to the spindle fibers at their centromeres.
 _____ 18. The nucleolus and nuclear membrane disappear.
 _____ 19. Sister chromatids are visible

What Went Wrong During MITOSIS? First study your Mitosis FLIP BOOK diagrams ($2n=6$) and then identify what went wrong during mitosis for each diagram by matching the appropriate choices from the list below:

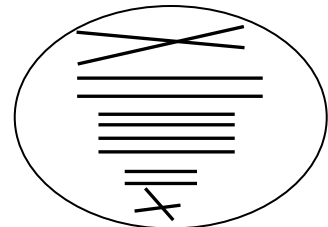
- A) 1 spindle fiber pair was broken D) Cytokinesis failed to happen
 B) 2 spindle fiber pairs were broken E) The centrioles were broken
 C) The chromatin replicated twice F) The chromatin NEVER replicated



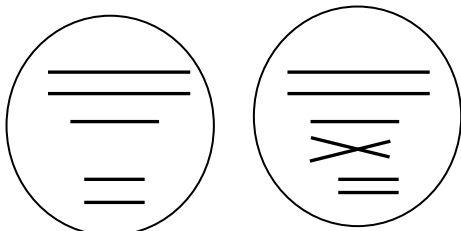
20. _____



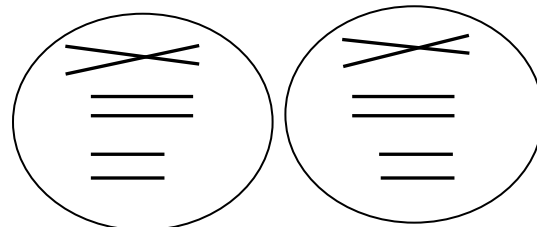
21. _____



22. _____



23. _____



24. _____