

Cell Cycle

Dec. 12/11

- Cell Reproduction → Mitosis - P.M.A.T → 10%
- ↳ Interphase → G₁, S, G₂ → 90%

Interphase

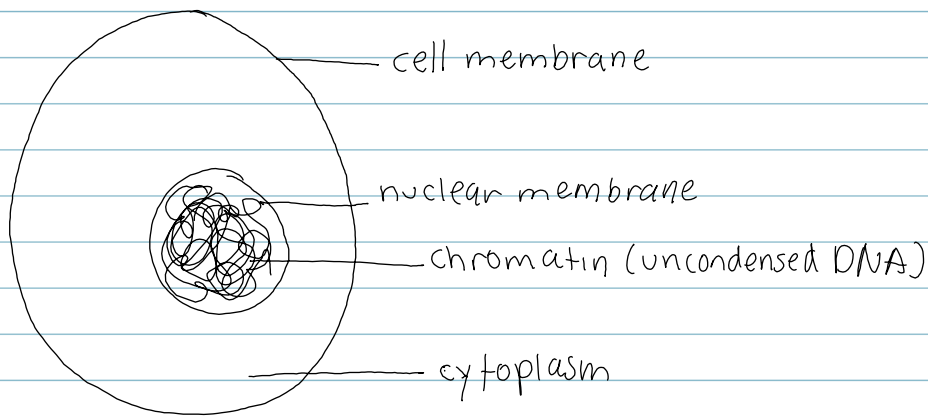
G₁ - Gap 1 - repair and rest - Mitosis

S - Synthesis - DNA is replicated

Humans, 23 pairs of chromosomes (46)
after synthesis, there are 92 chromosomes per cell

G₂ - Gap 2 - prepare for cell division

Interphase - Animal Cell

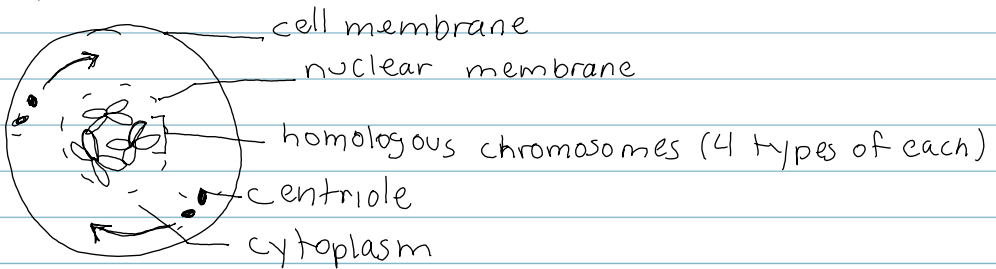


- nuclear membrane is still intact.
- DNA is uncondensed, you cannot see chromosomes.

Mitosis:

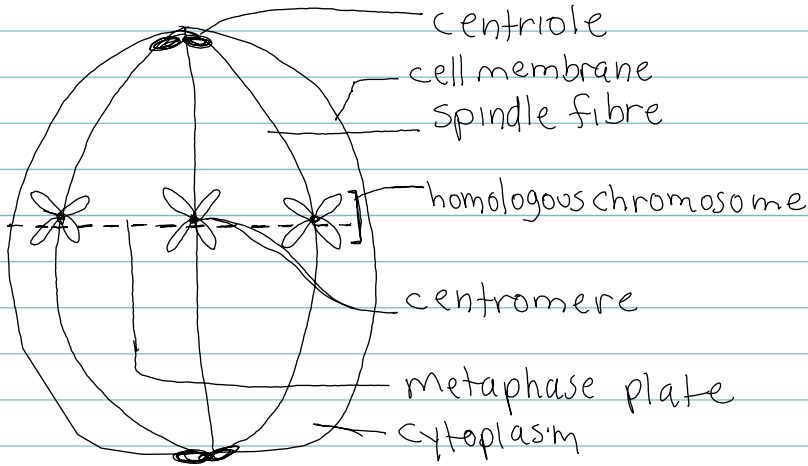
- The act of cell division
- 4 stages
 - prophase
 - metaphase
 - anaphase
 - telophase + cytokinesis

prophase



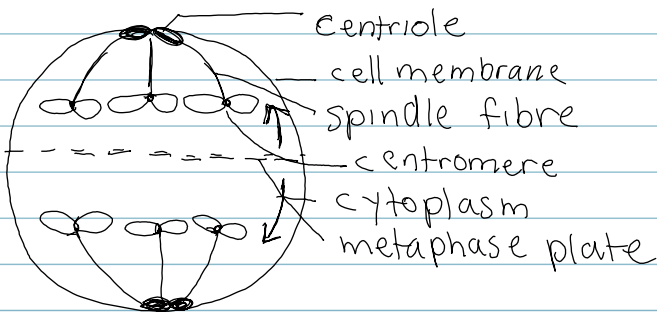
- nuclear membrane breaks down
- centrioles move to the poles
- chromosomes condense out of chromatin

Metaphase



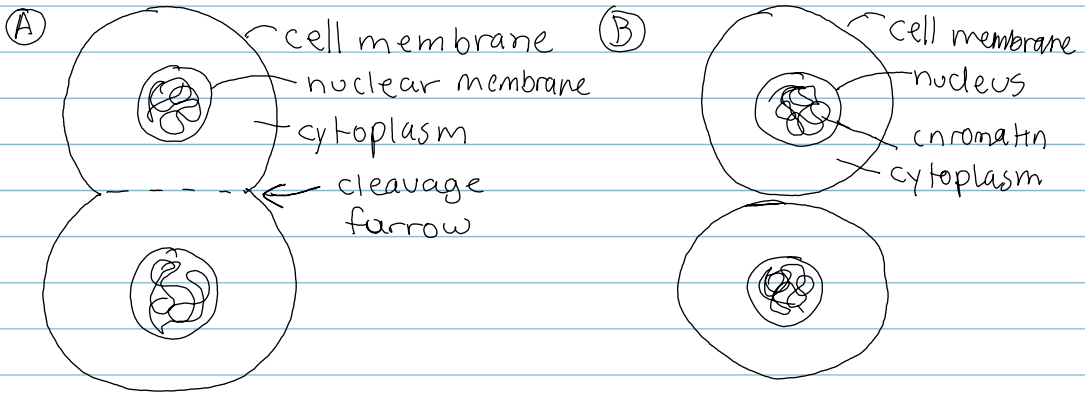
- chromosomes line at the metaphase plate
- nuclear membrane has completely broken down
- chromosomes have centrioles that attach to spindle fibres coming from the centrioles at each pole.

Anaphase



- spindle fibres retract towards the centrioles at the poles
- homologous chromosomes are split into paired sister chromatids

Telophase + Cytokinesis



1. Nuclear membrane reforms
2. Chromosomes unwind into chromatin
3. Cell splits into 2 identical cells (cytokinesis)
4. Cells enter G₁ (interphase)

Cancer

-uncontrolled cell division

Treatment:

- Radiation
- Chemotherapy
- Holistic → changes in diet, routine etc.