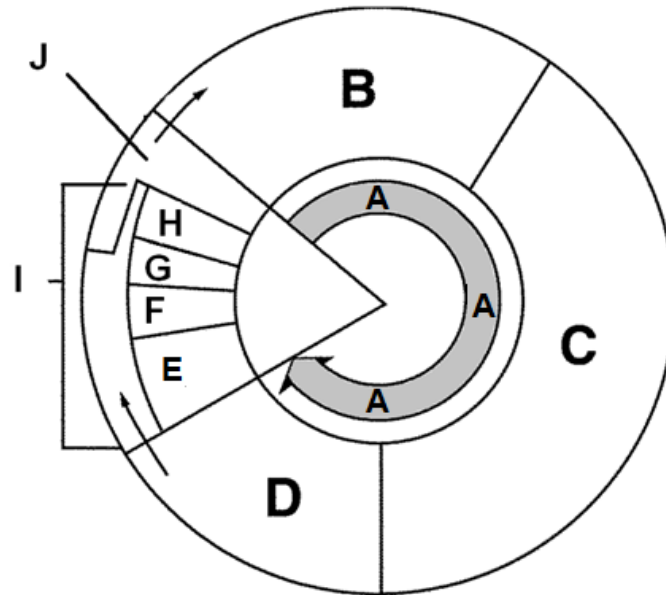


Mitosis practice



Label the parts of the cell cycle diagram and briefly describe what is happening:

A	Interphase - cell is growing and preparing for division.
B	G1 - growth and normal cell function
C	S - DNA replication
D	G2 - growth, preparation for division, duplicate organelles
E	Prophase - nuclear envelope dissolves, mitotic apparatus set up, DNA condenses.
F	Metaphase - chromosome line up in center
G	Anaphase - sister chromatids separate and are pulled to poles of cell.
H	Telophase - nuclei reform, DNA relaxes into chromatin, cleavage furrow or cell plate forms
I	Mitosis - nuclear division
J	Cytokinesis - the rest of the cell divides

1) Chromosomes move to the middle of the cell during what phase?

Metaphase

2) What are sister chromatids?

Half of a duplicated chromosome

3) What holds the chromatids together?

centromere

4) When do the sister chromatids separate?

anaphase

5) During which phase do chromosomes first become visible?

prophase

6) During which phase does the cleavage furrow start forming?

telophase

7) What is another name for mitosis?

karyokinesis

8) What is the structure that breaks the spindle fiber into 2?

kinetochore

9) What makes up the mitotic apparatus?

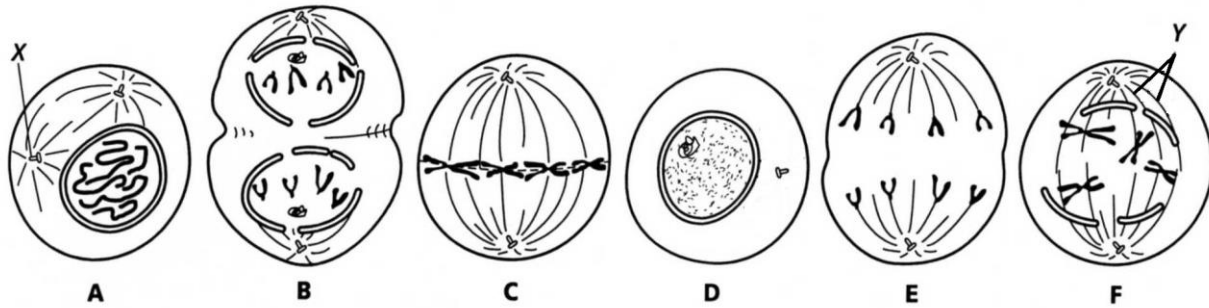
Centrioles, spindle fibers & aster fibers

10) Complete the table by checking the correct column for each statement.

Statement	Interphase	Mitosis
Cell growth occurs	X	
Nuclear division occurs		X
<u>Chromosomes</u> are finishing moving into separate daughter cells.		X
Normal functions occur	X	
Chromosomes are duplicated	X	
DNA synthesis occurs	X	
Cytoplasm divides immediately after this period		X
Mitochondria and other organelles are made.	X	

→ same

The Animal Cell Cycle – Phases are out of order



11) Which cell is in metaphase? **C**

12) Cells A and F show an early and late stage of the same phase of mitosis. What phase is it?

prophase

13) In cell A, what is the structure labeled X?

centriole

14) In cell F, what is the structure labeled Y?

Spindle fibers

15) Which cell is not in a phase of mitosis?

D

16) A new membrane is forming in B. What is this phase called?

telophase

17) Sequence the six diagrams in order from first to last.

D.A.F.C.E.B

18) What is the end product of mitosis?

two identical diploid cells

19) If the original cell has 46 chromosomes, how can each new daughter cell also have 46 chromosomes?

DNA is duplicated before the cell divides

20) 24. What is the main difference between cell division in plants and animals?

animal-forms cleavage furrow, plant-forms cell plate

21) What is the purpose of mitosis?

growth & repair

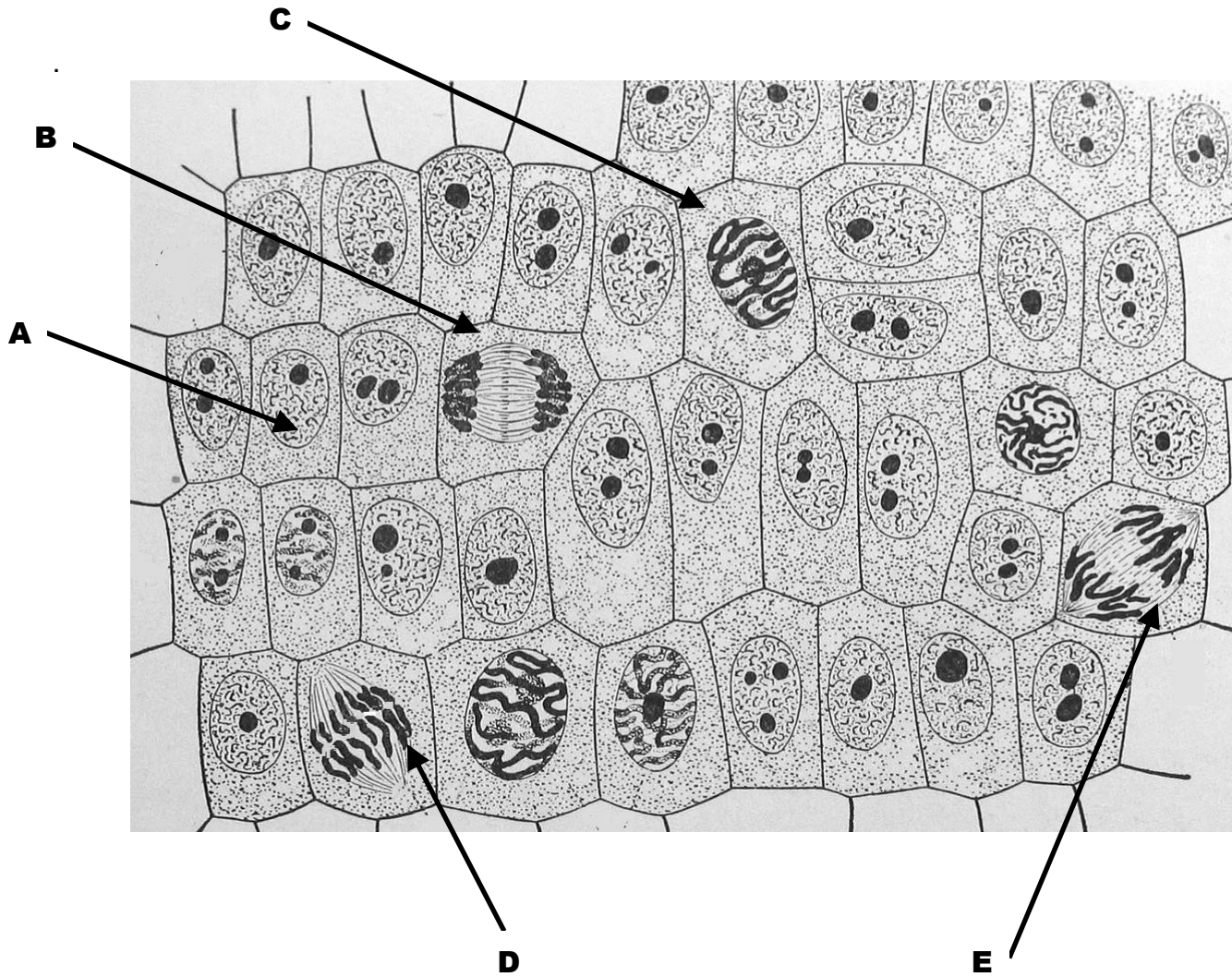
22) What is apoptosis?

programed cell death

23) If we do not go through apoptosis we can get cancer, explain why.

imperfect cells will grow unchecked & divide

24) Complete this sentence: As cell size goes **up** effectiveness of diffusion and osmosis goes **down**. This drives the cells to stay small!!



Name the phase shown in the picture above.

Picture	Stage
A	interphase
B	telophase
C	prophase
D	early anaphase
E	late anaphase.