Name _____ Date _____ Period _____

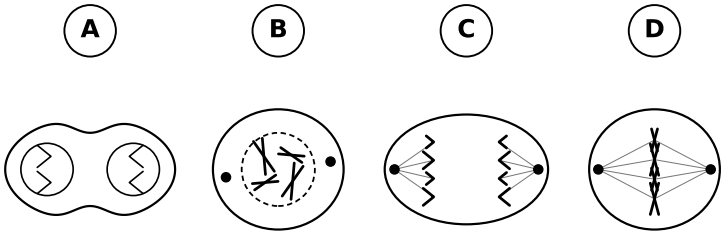
ZornScience
zornscience.org

Mitosis

Biology

Answer in complete sentences. Show your work for calculations.

1. The cells below are in different stages of mitosis.



(a) Write the letters in the order the stages happen.

(b) In which cell are the sister chromatids separating? Name that stage.

2. A student counted 200 onion root tip cells in the growth zone. The whole cell cycle takes 20 hours.

Stage	Interphase	Prophase	Metaphase	Anaphase	Telophase
Cells	140	30	12	8	10

(a) What percent of the cells are in prophase?

(b) How many hours does a cell spend in prophase?

(c) Which stage is the shortest? How do you know?

CC BY-NC-SA 4.0 | zornscience.org

3. The student also counted 200 cells in the elongation zone, farther up the root.

Part of the root	Cells in mitosis (out of 200)
Growth zone (near the tip)	60
Elongation zone (farther up)	10

Write a claim, evidence, and reasoning to answer: which zone has more dividing cells?

(a) Claim

(b) Evidence

(c) Reasoning

4. A cell with 6 chromosomes enters mitosis after S phase.

(a) How many chromosomes and how many chromatids does it have in metaphase?

(b) How many chromosomes does each daughter cell have?

CC BY-NC-SA 4.0 | zornscience.org