

# What is Mitosis?

## Worksheet

Mitosis is nuclear division that produces two daughter cells with the same chromosome number as the parent cell, proceeding through prophase, metaphase, anaphase, and telophase.

## Questions

1. After 3 successive mitotic divisions, how many cells exist?  
A) 3  
B) 6  
C) 8  
D) 9
2. During which phase do chromosomes align at the cell's equator?  
A) Prophase  
B) Metaphase  
C) Anaphase  
D) Telophase
3. What is the chromosome number of mitotic daughter cells relative to the parent?  
A) Half (haploid)  
B) Double  
C) Identical (diploid)  
D) Random
4. What happens during cytokinesis?  
A) DNA replicates  
B) Chromosomes condense  
C) The cytoplasm divides into two cells  
D) Chromatids separate
5. A skin cell undergoes 3 rounds of mitosis. How many cells result?
6. A fertilized egg divides mitotically 4 times during early cleavage. How many cells are in the embryo?
7. Starting from one bone marrow stem cell, how many cells exist after 6 mitotic divisions?
8. Define: What is mitosis?
9. Define: How many daughter cells does one mitotic division produce?
10. Define: What are the phases of mitosis in order?

## Answer Key

1. C)  $8 - N = 2^3 = 8$  cells.
2. B) Metaphase - Metaphase = chromosomes line up at the metaphase plate.
3. C) Identical (diploid) - Mitosis preserves the chromosome number - daughter cells are genetically identical diploid cells.
4. C) The cytoplasm divides into two cells - Cytokinesis physically splits the cytoplasm, completing cell division.
5.  $N = 2^n$   $N = 2^3 = 8$  cells
6.  $N = 2^n$   $N = 2^4 = 16$  cells
7.  $N = 2^n$   $N = 2^6 = 64$  cells
8. Nuclear division producing two genetically identical daughter cells with the same chromosome number as the parent.
9. Two - mitosis is a single division cycle ( $2^1 = 2$ ).
10. Prophase, metaphase, anaphase, telophase (often preceded by interphase and followed by cytokinesis).

### **Bounlu**

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Promy turns exam dates into automatic reminders.