Mitosis Vs Meiosis

Name: KEY

1. Compare Mitosis and Meiosis

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|  | MITOSIS | MEIOSIS |
| Purpose | Growth & repair | Make gametes |
| Cell types which undergo each type of cell division | Body cells (somatic)  Except nerve/brain cells | Sex cells (germ) |
| Number of divisions | 1 | 2 |
| Daughter Cells  Number  Haploid or Diploid  Identical or Unique  Number of chromosomes (in a human cell) | 2  Diploid  Identical  46 | 4  Haploid  Unique  23 |
| Difference in events of the phases | PMAT once  Chromosomes line up single file in metaphase  Sister chromatids separate | PMAT I & II  Chromosomes line up double file in metaphase I  Homologous pairs separate, then sister chromatids separate |

2. Identify three similarities of mitosis and meiosis

Many similarities. For example:

DNA replicates during interphase before cell division

Nuclear membrane fades in prophase

DNA condenses before dividing occurs

Centrioles move to poles and make spindle fibres to pull on DNA

Chromosomes line up at the equator

Involves dividing cells in half

Mitosis or Meiosis or Both?

|  |  |
| --- | --- |
|  | **Statement** |
| 1 | Can be a type of asexual reproduction Mitosis |
| 2 | Part of process of sexual reproduction Meiosis |
| 3 | Increases genetic diversity Meiosis |
| 4 | Nuclear membrane dissolves Both |
| 5 | Cells split once Mitosis |
| 6 | Daughter cells have same DNA as original cell Mitosis |
| 7 | Daughter cells have different DNA Meiosis |
| 8 | Daughter cells are haploid Meiosis |
| 9 | Results in 2 daughter cells Mitosis |
| 10 | Involves cells splitting in half Both |
| 11 | Produces gametes (sperm & ova) Meiosis |
| 12 | Daughter cells are diploid Mitosis |
| 13 | DNA condenses Both |
| 14 | DNA replicates before process starts Both |
| 15 | Cells splits twice Meiosis |
| 16 | Chromosomes line up in the middle along the equator Both |
| 17 | Almost all cells go through this process Mitosis |
| 18 | Daughter cells have 23 chromosomes Meiosis |
| 19 | Daughter cells have 46 chromosomes Mitosis |