

COMPARING MITOSIS AND MEIOSIS

NAME _____

Directions: Use your notes, textbook, and other resources to compare mitosis and meiosis; and also the differences in meiosis in the human male and female.

1. What is the name of the cell produced during meiosis? _____
2. What is the name of the cell produced during mitosis? _____
3. How many cells are produced during mitosis? _____
4. How many cells could be produced during meiosis? _____
5. What is the chromosome number of the parent cell during mitosis? _____
(diploid or haploid)
6. What is the chromosome number of the daughter cell during mitosis? _____
(diploid or haploid)
7. What is the chromosome number of the parent cell during meiosis? _____
(diploid or haploid)
8. What is the chromosome number of the daughter cell during meiosis? _____
(diploid or haploid)
9. What is the main function in the process of mitosis? _____
10. What is the main function in the process of meiosis? _____

Compare the process of meiosis as it occurs in human males and females by completing the table below.

	Males	Females
Number of cells produced		
Size of the cells produced		
Chromosome number of parent cells		
Chromosome number of daughter cells		
Name of the cell produced		

SHORT ANSWER:

1. A muscle cell of a goldfish has 94 chromosomes. Indicate the number of chromosomes you would expect to find in the following cells of the same goldfish.
 - (a) fertilized egg cell _____
 - (b) sperm cell _____
 - (c) egg cell _____
 - (d) skin cell _____

COMPARING MITOSIS AND MEIOSIS IN NATURE: Asexual vs. Sexual Reproduction

	Sexual	Asexual
Definition	Requires the union of two cells so that genetic information from each cell is combined	Involves only a single parent organism and produces an exact clone of the parent
Biological Process	Meiosis	Mitosis
Advantages	Offspring will be different from its parents (variation); this allows species to adapt to its surroundings	Occurs much quicker than sexual reproduction; produces more organisms in a shorter period of time
Disadvantages	Usually takes longer for the organism to develop; fewer numbers of organisms produced	New organisms are genetically identical to parents; no variation in offspring
Examples	Most animals reproduce sexually (fly, human, snake, frog)	Small organisms, such as bacteria, paramecia, algae, hydras, sponges reproduce <i>mostly</i> by asexual reproduction
Examples	Flowering plants and plants that make seeds can reproduce sexually (daffodil, grass, rose, oak tree)	Some flowering plants can reproduce asexually (grass, strawberry, spider plant)
Types	Fertilization of gametes (egg and sperm)	Budding: when part of cytoplasm breaks off from parent organism and develops into a separate organism (amoeba, yeast, paramecium, hydra, spider plant) Spore formation: haploid spores develop into a new organism (fungi, mosses, mushrooms, mold) Binary fission: direct division of one large cell into two larger cells (bacteria, amoeba, paramecia, algae) Vegetative propagation: part of a parent plant develops into a new plant through runners, stem cuttings, underground stems (strawberry, geraniums, potatoes)

Label the diagrams below as to asexual or sexual reproduction. If asexual, identify the type of process.

