Name _____ Period: _____

Sexual reproduction and meiosis review

1. During fertilization, what 2 cells fuse or combine? _____
2. During fertilization, are the cells that combine haploid or diploid? _____
3. What is produced at the end of fertilization? _____
4. Is this cell at the end of fertilization haploid or diploid? _____
5. What will this final cell of fertilization become? _____
6. Mitosis is _____ reproduction whereas meiosis is _____ reproduction.
7. Which process *Meiosis or Mitosis* maintains a constant/same number of chromosomes in a species? _____
8. What type of cell *Body or Sex cell (Gamete)* have a diploid number of chromosomes? _____
9. What type of cell *Body or Sex cell (Gamete)* have a haploid number of chromosomes? _____

Complete the following chart on chromosome numbers for the species listed.

Species	Chromosome Number in body/somatic cells (2n)	Chromosome Number in sex cells/gametes (n)
Homo sapiens Human	2n = 46	n= 23
fruit fly	2n = 8	n=
leopard frog	2n =	n=13
housefly	2n=	n=6
monkey	2n=42	n=
bat	2n=	n=22
chicken	2n=78	n=
king crab	2n=	n=104
camel	2n = 70	n=
goat	2n=	n=30
armadillo	2n=64	n=
petunia	2n=	n=7
rice	2n =	n=12

Now answer similar questions by reading carefully whether gamete number, chromosome pairs or chromosome number is asked for.

_____ Dogs have 78 chromosomes in their body/somatic cells. How many chromosomes are in their sex cells/gametes?

_____ How many pairs of chromosomes do dogs have in their body cells/somatic cells?

_____ Cats have 38 chromosomes in their somatic cells. How many chromosomes are in their sex cells/gametes?

_____ Horses have 32 chromosomes in their gametes. How many chromosomes are in the body cell/somatic cell?

_____ How many chromosome pairs does a horse have in its body/somatic cells?

_____ Wheat has 42 chromosomes. How many chromosomes are in the eggs and pollen?

General Comparison of Mitosis and Meiosis.

Each characteristic or event below applies to **mitosis, meiosis, or both**. Indicate which type of division in the lines provided.

_____ One cell divides 2 times to form 4 cells.

_____ Formation of gametes in eukaryotic cells.

_____ Zygote (fertilized egg) divides to form the trillion-celled baby.

_____ daughter cells have the identical chromosomes as the parent cell

_____ pairing up and crossing over between homologous chromosome pairs occurs at prophase

_____ daughter cells are genetically different from each other and from the parent cell

_____ DNA replicates before cell division

_____ one cell divides to form 2 identical cells

_____ daughter cells have exactly ½ the number of chromosomes as the parent cell

_____ cells in our body such as skin cells, blood cells, bone cells divide by this process

_____ One division takes place

_____ Homologous Chromosomes are paired

_____ Maintains the chromosome number of a species

_____ diploid cells are formed

_____ haploid cells are formed

_____ replicated chromosomes line up in the middle of the cell.

In your textbook, read about genes, chromosomes, and numbers.

Examine the table. Then answer the questions.

Chromosome Numbers of Some Common Organisms

Organism	Body Cell ($2n$)	Gamete (n)
Human	46	23
Garden pea	14	7
Fruit fly	8	4
Tomato	24	12
Dog	78	39
Chimpanzee	48	24
Leopard frog	26	13
Corn	20	10

1. What is the diploid number of chromosomes in corn?

_____

2. What is the haploid number of chromosomes in corn?

_____

3. Is the chromosome number related to the complexity of the organism?

_____

4. How many pairs of chromosomes do humans have?

_____

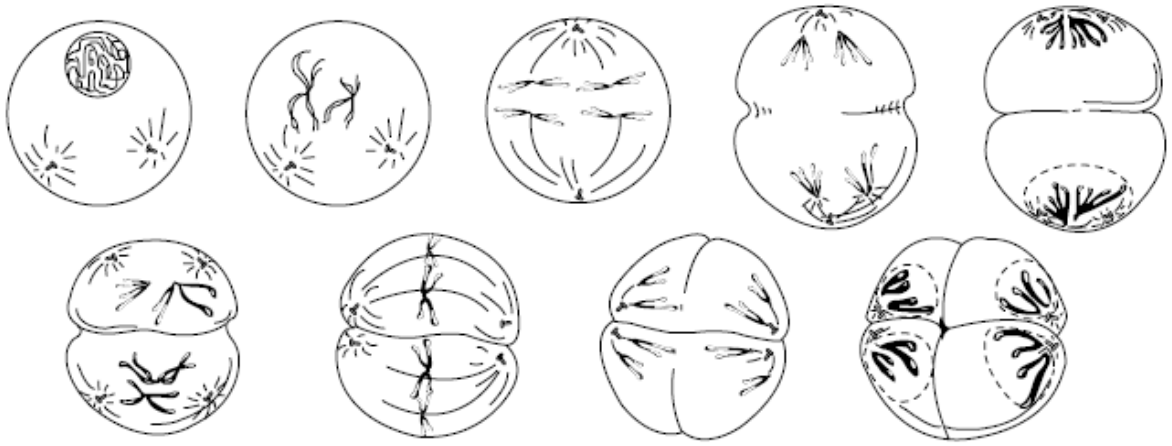
5. What process maintains a constant number of chromosomes within a species?

_____

In your textbook, read about the phases of meiosis.

Label the diagrams below. Use these choices: Metaphase I, Metaphase II, Interphase, Telophase I, Telophase II, Anaphase I, Anaphase II, Prophase I, Prophase II.

6. _____ **7.** _____ **8.** _____ **9.** _____ **10.** _____



11. _____ **12.** _____ **13.** _____ **14.** _____

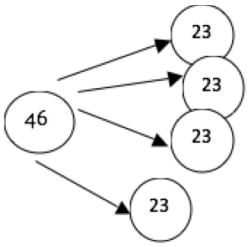
Which picture from the above diagrams shows 4 haploid daughter cells? _____

Which picture from the above diagrams shows the **sister chromatids** separating? _____

The following statements describe interphase and and meiosis I. Identify each phase. Then place them in sequential order using the numbers 1 through 5. Use 1 for the phase that occurs first and 5 for the phase that occurs last.

Statement	Name of Phase	Sequence
15. Homologous chromosomes line up at the equator in pairs.		
16. The cell replicates its chromosomes.		
17. Homologous chromosomes separate and move to opposite ends of the cell.		
18. The spindle forms, and chromosomes coil up and come together in a tetrad; crossing over may occur.		
19. Events occur in the reverse order from the events of prophase I. Each cell has only half the genetic information; however, another cell division is needed because each chromosome is still doubled.		

Fix underlined word if statement is False.



_____ 20. Mitosis is represented by the diagram to the right

_____ 21. Sperm and eggs are produced through meiosis.

_____ 22. A zygote results from the following: 2 + 2 = 4

Karyotypes show pairs of homologous chromosomes. Draw a pair of homologous chromosomes.