

1. What is the difference between chromosomes, chromatids, and homologous chromosomes?  
 X-chromatid (one side of replicated chromosome)

X or L  
 chromosome (condensed DNA)  
 XX homologous chromosomes (same sized shape + genes from mom + 1 from dad)

2. How are DNA and chromosomes related?  
 DNA is the genetic info.  
 chromosomes are a form of DNA - it is tightly wound DNA.

3. What is the difference between haploid, diploid, and zygote?  
 Haploid - 1 full set of chromosomes  
 Diploid - 2 full sets of chromosomes  
 zygote - fertilized egg (sperm + egg).

4. What is mitosis and why does it happen?  
 mitosis - cell division + asexual reproduction.  
 \* Hydras, bic cells get to big, growth, repair, asexual reproduction.

5. What happens in interphase? How many copies of DNA are there? How many chromosomes? How many chromatids?  
 Interphase - cellular growth + DNA replication  
 - DNA duplicated (loosely coiled-chromatin)

6. What happens in Prophase? How many copies of DNA are there? How many chromosomes? How many chromatids?  
 Prophase - Chromosome become visible + Nuclear membrane dissolves.  
 2 copies of (46) - 46 chromosomes (92 chromatids)

7. What happens in metaphase? How many copies of DNA are there? How many chromosomes? How many chromatids?  
 Anaphase - chromosomes are pulled apart.  
 same as above

8. What happens in Telophase? How many copies of DNA are there? How many chromosomes? How many chromatids?  
 Nuclear membrane reforms around chromosome.  
 - same as above.

Metaphase -  
 line up in middle

9. What is cytokinesis? How many copies of DNA are there? How many chromosomes? How many chromatids?  
 cellular membrane splits in half  
 - all set in each cell.

10. How does Meiosis differ from Mitosis?  
 - gametes - 1/2 of chromosomes - asexual  
 - division - 4 cells - 1 division - 2 cells.  
 - all set in each cell.  
 - Meiosis - 1 division - 4 cells  
 - Mitosis - 1 division - 2 cells

11. What does Meiosis create?  
 gametes

12. Why is there such a thing as Meiosis? What is a gamete?  
 to create gametes (variation)  
 sex cell (male - sperm + female - egg).  
 - Occurs in meiosis I - homologous chromosomes exchange genetic info.

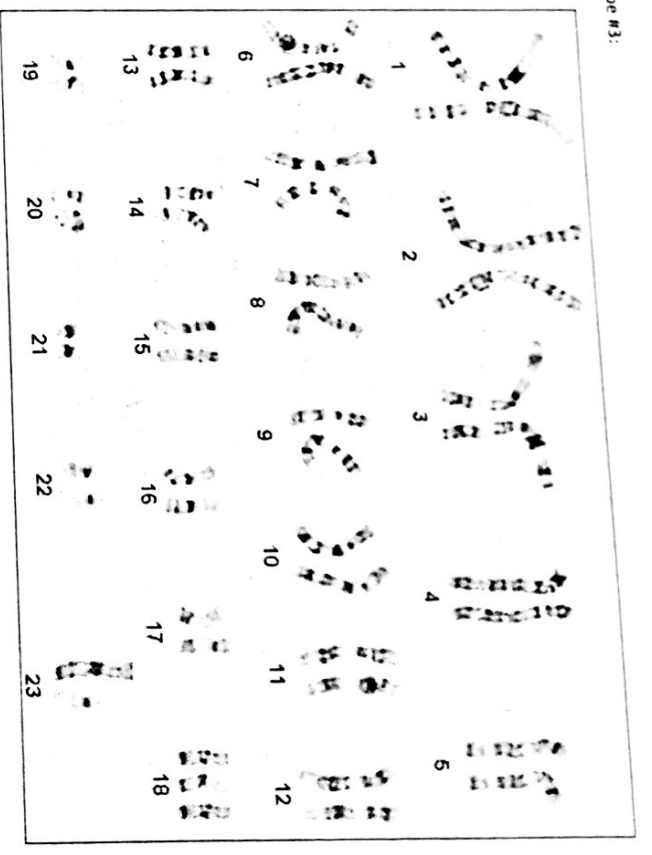
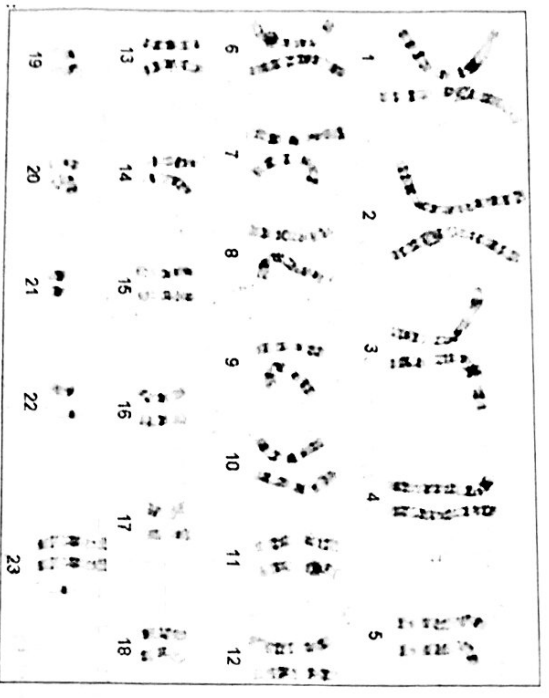
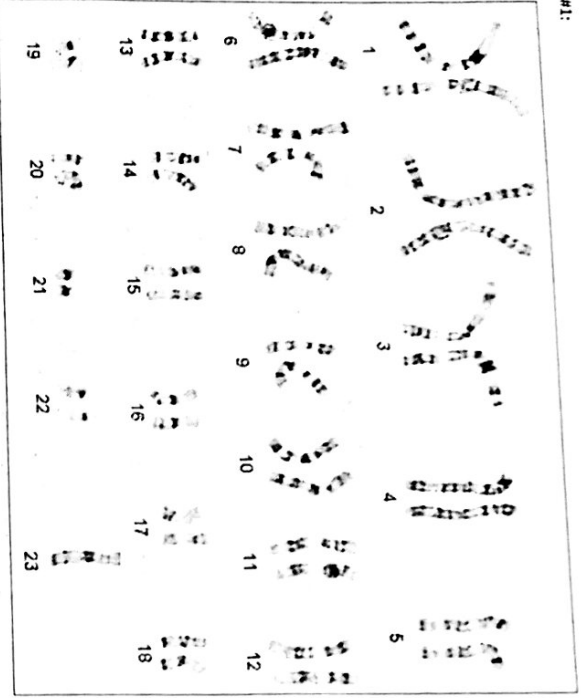
13. What is crossing over? When does it happen? Why might it happen?  
 - Occurs in meiosis I - homologous chromosomes exchange genetic info.

14. Why don't things just reproduce asexually? What is the advantage of sexual reproduction?  
 sexual reproduction allows for genetic variation, but does take more time + energy.

15. What is nondisjunction? How is it different from disjunction?  
 Disjunction - proper separation of chromosomes during meiosis  
 nondisjunction - improper separation of chromosomes during meiosis.

16. List the 4 types of chromosomal mutation?  
 - Deletion - part of chromosome is lost  
 - Duplication deletion - fragment attaches to homologous chromosome  
 - Inversion - chromosome genes are reversed  
 - Translocation - piece attaches to nonhomologous chromosomes.

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_



For each Karyotype fill in the following information:

	Karyotype #1	Karyotype #2	Karyotype #3
Total # chromosomes	45	47	47
# of autosomes	44	44	45
Is this the correct # of autosomes?	yes	yes	no
# of sex chromosomes	1	3	2
Is this the correct # of sex chromosomes?	no	no	yes
What is the sex of this patient (male/female)?	female	male	male
Is there a disorder? (Yes/No)	yes	yes	yes
What is the disorder?	monosomy-23	trisomy-23	trisomy 28