

NAME: _____

DATE: _____ HOUR: _____

1. Draw a pair of homologous chromosomes. Correctly show the centromere position. Draw a gene location.

2. Describe what the terms haploid and diploid mean: _____

What is abbreviation used for haploid? _____ for diploid? _____

3. What is the general term that refers to all sex cells? _____

4. What is the purpose (goal) of meiosis? _____

5. What is the **importance** of meiosis? (Think about the DNA in the daughter cells) _____

6. At the beginning of meiosis, is the parent cell haploid or diploid? _____

7. During which phase does the chromosome number go from $2n$ to n ? _____

8. What is unique about the second interphase in meiosis? _____

9. What happens to the total chromosome number when an egg is fertilized by a sperm? _____

10. What special events happen during prophase I? Name and describe each of the events (hint: there are two!)

11. What is the difference between metaphase in mitosis and metaphase I in meiosis? _____

12. What is the goal of cell division (that is, what is the end result)? _____

13. What are the cells produced by cell division used for? _____

14. What are the three main parts of the cell cycle? _____

15. What is the difference between the terms “parent cell” and “daughter cells”?

16. What are homologous chromosomes? (This is an important concept!) Fill in the blanks below.

a. They are chromosomes that come in _____.

b. For the chromosomes in each pair, you get one from your _____ and one from your _____.

17. Draw a pair of sister chromatids.

18. How many **total** chromosomes do humans have? _____

19. How many **pairs** of homologous chromosomes do humans have? _____

20. A cell has 16 chromosomes.

a. How many of those chromosomes did the cell inherit from Dad? _____

b. How many of those chromosomes did the cell inherit from Mom? _____

c. How many are in a mother cell (parent cell)? _____

d. If the cell divides, how many chromosomes will each daughter cell have? _____

21. What is cancer? _____

22. What causes cancer? _____

23. What is apoptosis? _____

24. What is the importance of apoptosis? _____

25. Name each of the two types of stem cells, and describe what each type is capable of doing.

a. Type: _____

Capabilities: _____

b. Type: _____

Capabilities: _____

26. Why is research with embryonic stem cells so controversial? _____
