

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

## MT 8: Cell Cycle and Differentiation Review

**Vocabulary** - define the following

Chromatin -

Chromatid -

Sister Chromatid -

Chromosome -

Centromere -

**Why cells divide**

1. Why do cells divide?

2. Why do cells divide when they get too large?

3. If all cells of the same type are really about the same size, why are adult organisms bigger than baby organisms?

4. What type of cells does mitosis make? What type of cells does meiosis make?

5. What is the difference between haploid and diploid cells? Give an example of each.

**Cell Cycle**

6. Briefly describe what happens in the following stages of the cell cycle:

Stage	Brief description of what happens	Draw what it looks like
Interphase	G1 - S - G2 -	
Prophase		
Metaphase		
Anaphase		
Telophase		

Cytokinesis		
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7. How is cytokinesis different for plant and animal cells?

8. What part of the cell cycle do cells spend the majority of their time?

9. Mitosis is just one part of the cell cycle, what is the purpose of mitosis?

10. Where is the DNA located in a cell?

11. A cell that has 12 chromosomes will go through mitosis and result in \_\_\_\_ cells with \_\_\_\_ chromosomes in each.

### **Cancer**

12. When there are errors in the cell cycle regulation and cells grow uncontrollably, what does this usually result in?

13. What is density-dependent inhibition?

14. What is anchorage dependence?

15. Do cancer cells show either density-dependent inhibition or anchorage dependence?

16. There are checkpoints during interphase that keep cells from dividing if it isn't supposed to or there is a mutation, what alternate phase will they move into if this is the case? In this phase, can they divide anymore?

17. What are proto-oncogenes?

18. What are oncogenes?

19. What types of things can increase your chance of developing cancer?

### **Stem Cells**

20. What is a stem cell?

21. What is the difference between an embryonic stem cell and an adult stem cell?

22. What are iPS cells? What is the big benefit to using iPS cells?

23. What is cell differentiation (specialization)?

24. Describe an example of when we have used stem cell therapy to solve a problem.