MITOSIS AND MEIOTIS STUDY GUIDE

1. The three most important things that occur during interphase of the cell cycle are:
   a) 
   b) 
   c) 

2. Chromatids pair up in homologous chromosomes.
4. Diploid (2N) cells are formed.
5. Haploid (N) cells are formed.
6. Cell division (cytokinesis) occurs.

Put an X in the column in which each activity occurs.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mitosis</th>
<th>Meiosis</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromatids pair up in homologous chromosomes.</td>
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<tr>
<td>Spindle fibers form.</td>
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<tr>
<td>Diploid (2N) cells are formed.</td>
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</table>

7. In mitosis, nuclei are formed in both daughter cells and the mother cell begins to split during ________________.
8. In mitosis, sister chromatids split and move to opposite poles during ________________.
9. Chromatids (mitosis and meiosis II) and homologous chromosomes (meiosis I) line up at the equator of the cell during ________________.
10. The number of chromosomes in a diploid human cell is ________________.
11. Diploid cells contain ________ sets of chromosomes.
12. The number of chromosomes in a haploid human cell is ________________.
13. After interphase, there are ________________ chromosomes in a human cell.
14. The process of mitosis produces ________________ (#) identical new cells.
15. The process of meiosis produces ________________ (#) diverse new cells.
16. During interphase, the stringy, coiled DNA in the nucleus is called ____________________.
17. Paired chromosomes are called ____________________.
18. List the phases of mitosis in order including interphase and cytokinesis (hint: 6 total phases).
19. List the phases of meiosis in order including interphase and cytokinesis (hint: 11 total phases).
20. If a diploid corn plant has 20 chromosomes in its cells, a haploid corn gamete should have ________ chromosomes.
21. What is cytokinesis? Could new sex or body cells form without cytokinesis?
22. Why is the process of meiosis necessary for reproduction of a species?
23. How do mutations in your genes (DNA) cause cancer?