MITOSIS PRACTICE SUMMARY QUESTIONS

1. Which stage of the mitotic cycle takes the most time? What ***percentage*** of the total time is this?
2. Why do you think that this stage (in Question 1) takes so much longer? What activities, in relation to mitosis are occurring during this phase?
3. List the remaining stages, in order, from longest to shortest in duration.

A key characteristic of cancer cells is that they no longer have standard cell cycle controls that normally coordinate cell division activity. You may have heard of cancer cells being “runaway” with no controls on their rate of reproduction. Cancer cells have a much shorter cell cycle and go through interphase much faster than normal cells.

1. What processes could be affected in cancer cells because of the rapid nature of interphase? How does this support the “runaway” quality of cancerous cells?

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3. List the remaining stages, in order, from longest to shortest in duration.
4. How do the data for each phase of the ***normal*** chicken cell compare with that of the onion root tip cell? Are the percentages of time for the two longest phases similar? Make some generalized conclusions based on the information.
5. How does the timing of the complete cell cycle differ in ***normal*** chicken cells versus ***cancerous*** chicken cells?
6. Which stage exhibits the most dramatic difference in timing between normal and cancerous chicken cells?
7. What events would be most affected by the alteration in timing of mitosis in cancerous cells compared to normal cells? (HINT: Does anything important happen in *interphase*?)