

PHYS 106 Spring 2003  
"How Things Work" Problem Set #3

1. Look up the specifications for your favorite computer microprocessor, and state how many transistors it contains, approximately what year it was first manufactured, and one other interesting fact of your choice--which you must explain. Good resources for this question are the Intel web site (for Pentiums, etc.), the IBM web site, and the Advanced Micro Devices web site. Be sure to state your source.
2. Case 1 on pages 323-324 of your text (Un-interruptible Power Supply). Do parts a, b, d and e. Omit part c, and substitute the following question as part c instead: "What is the ratio of the number of turns at the primary to the number of turns at the secondary? Which has more turns?"
3. Case 1 on pages 379-380 (Microwave Ovens). Do all parts a, b, c and d.
4. Case 4 on pages 380-381 (Cellular Phones). Do parts a, b, c, d, e and f. Omit parts g and h, but substitute the following question as part g instead: "According to the U.S. government allocation chart, into what category do these cell phone frequencies fall? Also, what is the category just to the left on the chart (slightly lower frequencies-blue on the chart)?" The web site is [www.ntia.doc.gov/osmhome/allochrt.pdf](http://www.ntia.doc.gov/osmhome/allochrt.pdf)

End of problem set.