The Happy and Joyous Practice Problems for the Final

Math 160, Fall 2006

You will not be allowed to use any type of calculator whatsoever, you will not be allowed to have any other notes, the test will be closed book, and there is no escape. The actual test will be graded in red ink! There will be no mercy for the weak. Mathematics is cumulative. Deal with it. What you don’t know will hurt you. You need to be able to make simple and/or standard simplifications. In order to get credit or partial credit, your work must make sense.

I strongly suggest that you do these problems under the conditions of the actual test! I also strongly suggest that you redo the old practice tests!

1. What are the odds of winning the lottery if you need to pick six numbers out of forty-eight?

2. In how many orderings can you place 4 Oreos, 3 Chocolate Chip Cookies, and 5 Sleeves of Girl-Scout Thin-Mint Cookies? (Admit it: Those cookies are eaten one sleeve at a time.)

3. My brother William has decided to flip a coin eight times and eat a hot dog each time the coin comes up heads, and eat a hamburger each time it comes up tails. Assuming that he pulls this off, what are the chances that he eats exactly 3 or 4 hamburgers?
4. I arrange for all of William and Isabel’s friends to bring their pet rodents to my step-mom’s house for a race. Assuming that there are a total of twenty pets in the race, and assuming that I bet on the race, choosing pets at random, then what are the chances that I successfully pick (in order) the first three finishers? (You get no credit for stating the chances that my step-mom kicks my butt.)

5. If you roll two dice, then what are your chances of rolling a six with at least one of them, or having the two dice sum to eight?