

Week 42 (6/30/03)

How much change?

You are out shopping one day with $\$N$, and you find an item whose price has a random value between $\$0$ and $\$N$. You buy as many of these items as you can with your $\$N$. What is the expected value of the money you have left over? (You may assume that $\$N$ is large compared to a penny, so that the distribution of prices is essentially continuous.)