

Problem for Week 3

Imagine that you have three boxes, one containing two black balls, one containing two white balls, and one containing one black ball and one white ball. The boxes were labelled for their contents - BB, WW and BW - but somebody has switched the labels and you know that every box is now incorrectly labelled. You are allowed to take one ball at a time out of any box, without looking inside, and by this process of sampling you are to determine the contents of all three boxes.

What is the smallest number of "draws" needed to do this?