



Five Minute Mystery



The Case of the Moving Expectation

Statsville broadcasts a number of popular quiz shows, and among these is Seal or No Seal. In this show, the contestant is shown a number of boxes containing different amounts of money, and they have to choose one of them, without looking inside. The remaining boxes are opened one by one, and with each one that's opened, the contestant is offered the chance to keep the money in the box they've chosen, sight unseen, or accept another offer based on the amount of money contained in the rest of the unopened boxes. The Statsville Seal Sanctuary get a donation based on any winnings the contestant gets.

The latest contestant is an amateur statistician, and he figures he'll be in a better position to win if he knows what the expectation is of all the boxes. He's just finished calculating the expectation when the producer comes over to him.

"You're on in three minutes," says the producer, "and we've changed all the values in the boxes. They're now worth twice as much, minus \$10."

The contestant stares at the producer in horror. Are all his calculations for nothing? He can't possibly work out the expectation from scratch in three minutes. What should he do?

How can the contestant figure out the new expectation in record time?