

June 2002 Solve this: You have 6 identically looking balls, of which one ball is different by weight only (you don't know if it is heavier or lighter). You have a simple balance. The goal is to figure out which is the "odd" ball in three weighings or less!

Answer:

To facilitate the solution, we randomly assign each ball a number. The following diagram takes into consideration all possible scenarios. When the balance is equal, the weighed balls are identical, and thus the different ball is one not on the scale. Likewise, when the balance is offset, the different ball is one of the balls on the scale.

