

Instructions:

Solve the following puzzles. With your solutions, please identify the “key step” (or realization) that allows you to obtain your answer.

Puzzle 1: A confectioner receives three boxes of candy. One contains only mints. One contains only chocolates. And one contains a mixture of the two. (Visually a mint is indistinguishable from a chocolate.) The boxes have labels that identify their respective contents. However, the confectioner is informed that all three boxes have been mislabeled. What is the minimum number of candies that the confectioner has to taste in order to correctly label the three boxes?

Puzzle 2: Decipher the following message.

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 1, 0, 0, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 1, 0, 0, 1, 1, 1, 1, 0, 1,
1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 0, 0, 0, 1, 1, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0,
0, 0, 0, 0, 1, 1, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

Puzzle 3: There is a lamp inside a closed room that is controlled by one of three switches that are outside the room. The switches are currently in the off position. The only way to tell what is happening inside the room is to open the door and take a look, but once you open the door, the switches are locked in their current position. How can you determine which switch operates the lamp?

Puzzle 4: You have a 4-minute hourglass and a 7-minute hourglass. How can you measure a period of exactly 9 minutes? (Note: the hourglasses must always be running. That is to say, you cannot put them sideways. And flipping an hourglass is instantaneous.)

Puzzle 5: A student asks his engineering professor, “What are the ages of your three kids?” She replies, “If you multiply their ages you get thirty six, and if you add their ages you get my office number”. The student looks at the office door and replies, “I need more information.” To which the professor responds, “True, my oldest is obsessed with Dartmouth.” What are the ages of the professor’s three children?

Puzzle 6: In the Land of the Lies, everyone lies. In the Town of the Truth, everyone tells the truth. A foreigner is imprisoned in a room with two doors. One leads to freedom, the other to certain death. Each door is guarded: one guard is from the Land of the Lies, the other from the Town of the Truth. (And visually, there is no way to tell which guard is from where.) The foreigner is allowed to ask exactly one question to exactly one of the guards. What question can she ask that will lead her to safety?

Puzzle 7: A mother is 21 years older than her son. In six years the mother will be five times the age of her son. Where is the father right now?