Buddhist monk problem

One morning, exactly at sunrise, a Buddhist monk began to climb a tall mountain. The narrow path, no more than a foot or two wide, spiraled around the mountain to a glittering temple at the summit. The monk ascended the path with an average speed of 3 mph. He reached the temple shortly before sunset. After several days of fasting and meditation, he began his journey back along the same path, starting at sunrise and walking at an average speed of 5 mph.

Is there a spot along the path that the monk occupied on both trips at precisely the same time of day?

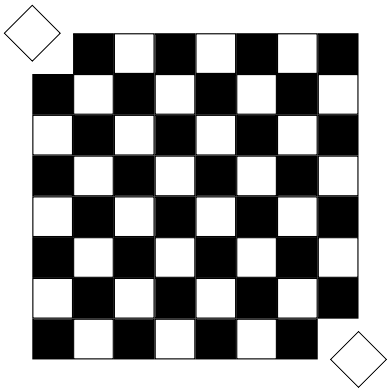
The tree planting problem

A landscape gardener is given instructions to plant four special trees so that each one is exactly the same distance from each of the others. How could the trees be arranged?

Mutilated checkerboard

A checkerboard contains 8 rows and 8 columns or 64 squares in all. You are given 32 dominoes, and asked to place the dominoes on the checkerboard so that each domino covers two squares. With 64 squares and 32 dominoes, there are many arrangements of dominoes that will cover the board.

Now we take out a knife, and cut away the top-left and bottom-right squares on the checkerboard. We also remove one of the dominoes. Therefore, you now have 31 dominoes with which to cover the remaining 62 squares of the checkerboard. Is there an arrangement of the 31 dominoes that will cover the 62 squares? Each domino, as before, must cover two adjacent squares on the checkerboard.



The bronze coin problem

A stranger approached a museum curator and offered him an ancient bronze coin. The coin had an authentic appearance and was marked with the date 544 B.C. The curator had happily made acquisitions from suspicious sources before, but this time he promptly called the police and had the stranger arrested. Why?

The tumor problem

Suppose you are a doctor faced with a patient who has a malignant tumor in his stomach. To operate on the patient is impossible, but unless the tumor is destroyed, the patient will die. A kind of ray, at a sufficiently high intensity, can destroy the tumor. Unfortunately, at this intensity the healthy tissue will also be destroyed. At lower intensities the rays are harmless to healthy tissue, but will not affect the tumor. How can the rays be used to destroy the tumor without injuring the healthy tissue?

The nine dot problem

Draw four straight lines, passing through all nine of these dots, without lifting your pencil from the page.