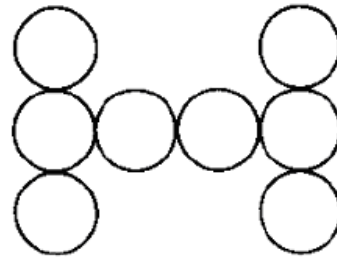


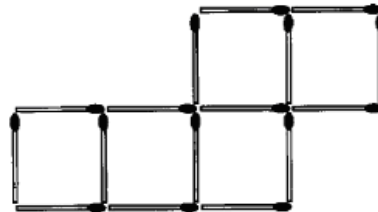
1. **A two touching transformation**

Arrange eight coins to form the H pattern shown. By moving one coin at a time, by sliding it into a position where it *touches two other coins*, form the square. How many moves did you need?

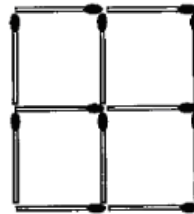


2. **One square less**

(a) Change the position of, but do not remove, two matches to form exactly four squares

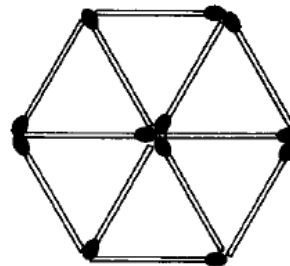


(b) Change the position of, but do not remove, three matches to form exactly three squares.



3. **Matchstick magic**

This hexagonal wheel of six equilateral triangles is made from twelve matches. By moving just four matches the wheel can be turned into a figure consisting of three equilateral triangles. How?



4. A tricky river crossing

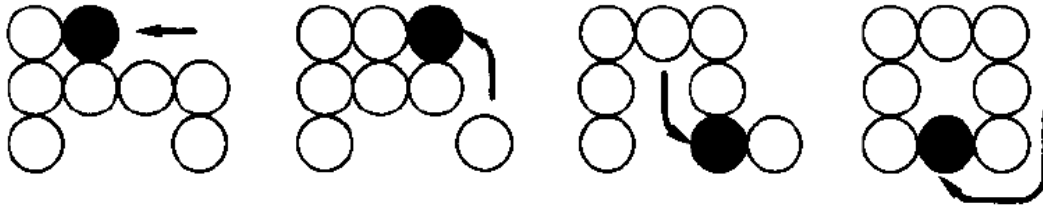
This old puzzle tells a farmer traveling the countryside on tour with a wolf, a goat, and a cabbage. He comes to a river bank and the only means of getting across is a small boat which can hold him with only one of the wolf, the goat or the cabbage. Unfortunately he dare not leave the wolf alone with the goat or the goat alone with the cabbage for the wolf would eat the goat and the goat would eat the cabbage. After some thought the farmer realized that he could use the boat to transport himself and all his belongings safely across the river. How did he do it?

KEYS

1.

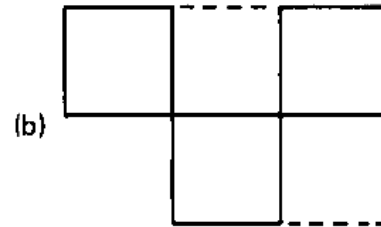
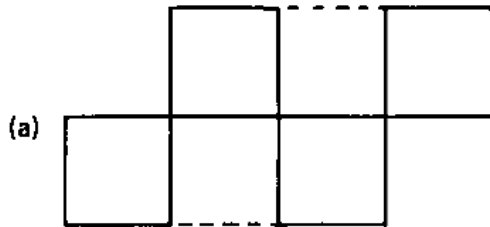
**A touching transformation**

To change the H to the square:



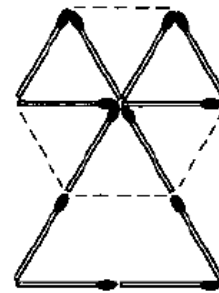
2.

**One square less**



3.

**Matchstick magic**



4. The farmer must first take the goat across. He then takes the wolf across and brings the goat back. He next takes the cabbage across and finally returns to collect the goat.