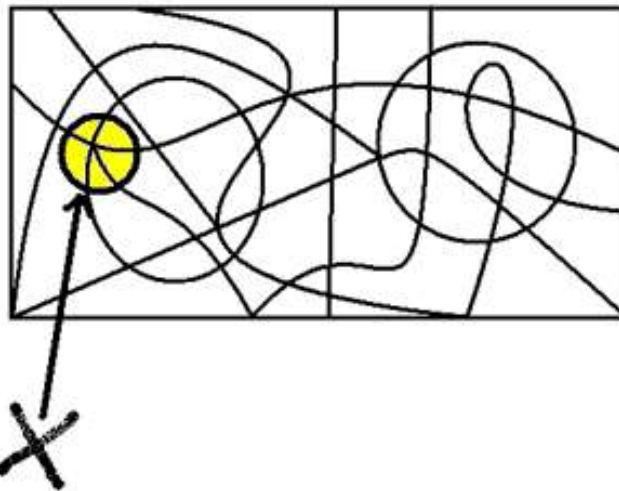
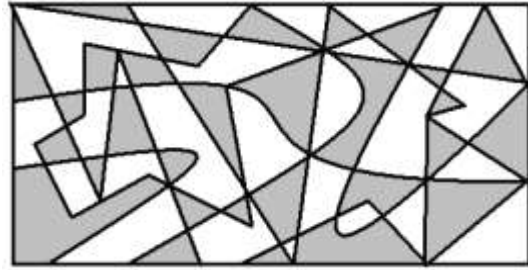
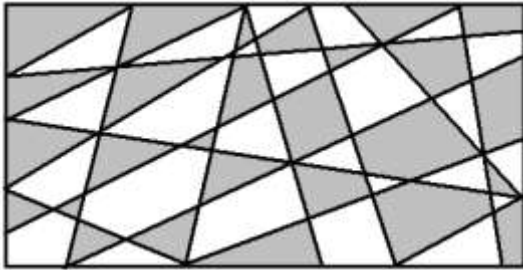


WITHOUT WORDS

Mathematical Puzzles to Confound and Delight



WW 13: SOLUTION



In colouring a map we never want two regions that share a common length of boundary to be assigned the same colour. (Two regions that meet at a common point, however, can be given the same colour. This causes no confusion in identifying the regions.)

The first two maps can be successfully coloured with just two colours. The third can't as it possesses intersection points at which odd numbers of regions meet: these regions can't alternate in colour around that intersection point as they should.

For much more on map colouring – colouring maps with two colours, colouring maps with four colours, colouring maps on donuts with seven colours – see *SOLVE THIS: Math Activities for Students and Clubs*. (<http://www.maa.org/publications/ebooks/solve-this>)