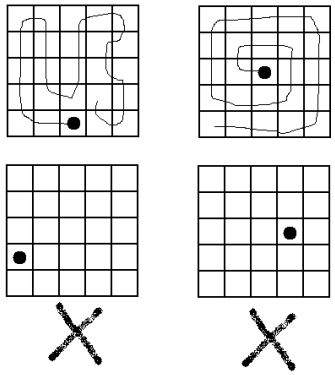
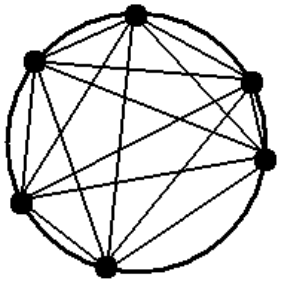
Math without words: Solutions

PUZZLE 1.



Colour the grid like a checkerboard and count how many cells there are of each colour. Can you explain now why the latter two puzzles are impossible to solve?

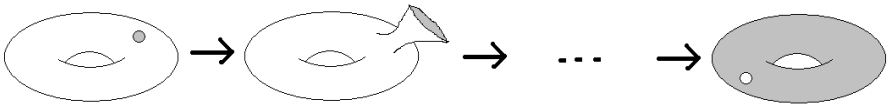
PUZZLE 2.



31

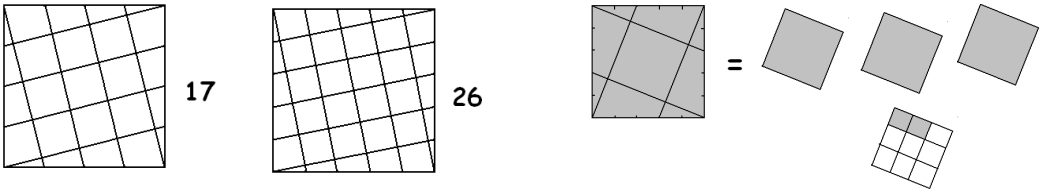
What are the next few numbers in this sequence?

PUZZLE 3:



Try it with a pair of trousers with the leg openings sewn together!

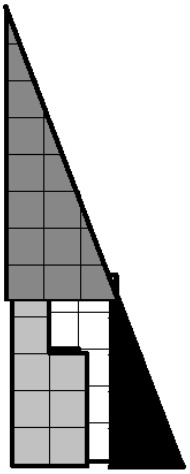
PUZZLE 4.



PUZZLE 5:

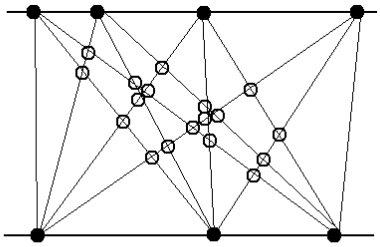
34

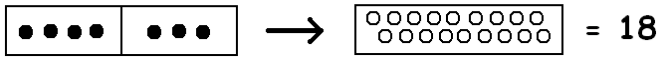
PUZZLE 6:

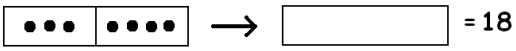


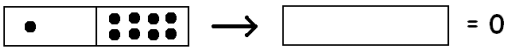
The pieces do not quite fit together as shown. In fact the hypotenuse of one triangular piece has slope − and the other slope − . The two large "triangles" don't have straight line hypotenuses: one caves in slightly, the other bulges out. (And the difference in area? One unit!)

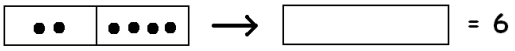
PUZZLE 7.

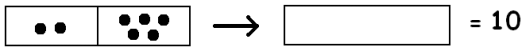


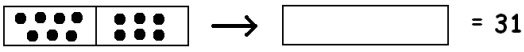






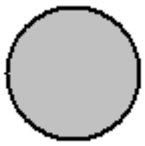






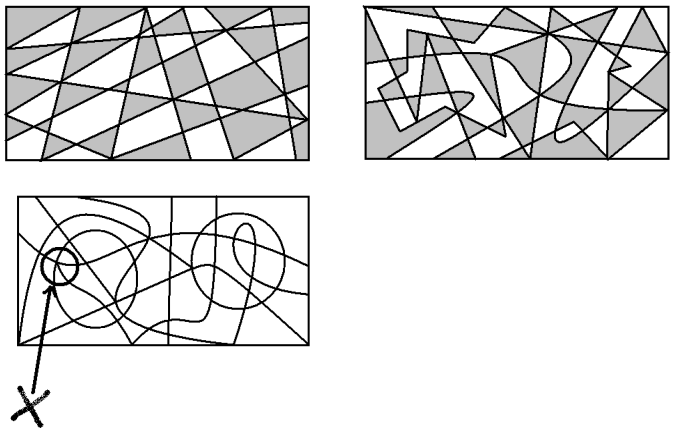
A general formula ??

PUZZLE 8.



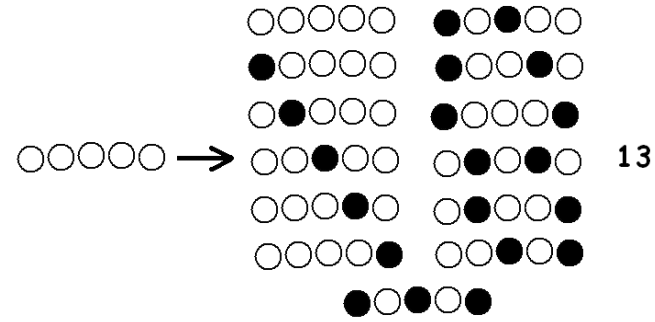
If we count turning in the opposite direction as producing "negative area," then one can see that the sum of wedges always amounts to one full turn.

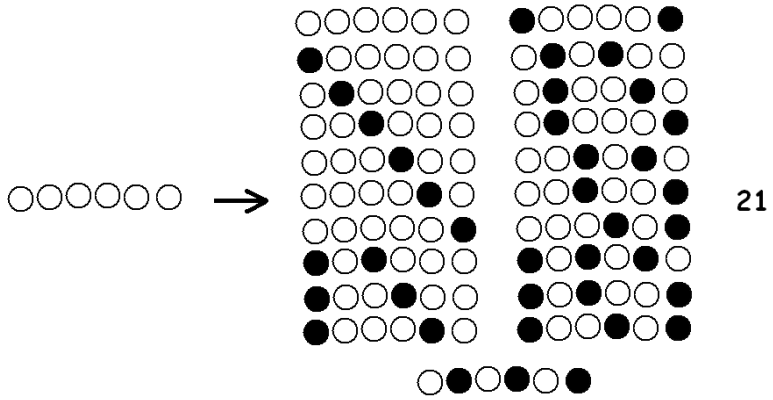
PUZZLE 9.



Can you prove that ANY map with the number of lines emanating from each intersection point even is certain to be two-colourable?

PUZZLE 10.





What famous sequence of numbers is appearing? Why is the count of solutions for dots the sum of solutions for and for dots?