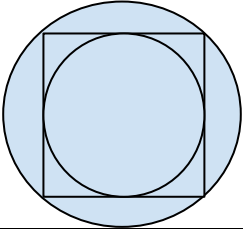


1	Suppose you are given a 10x10 grid of points (100 points) and no two adjacent points (exactly one apart in any direction) have the same color. How many colors are necessary to color this grid?
2	<p>Find the area of the outermost circle in the following figure, if the inner circle has an area of 4π: assume that the figure only consists of circles and one square.</p> 
3	Let ABC be a triangle. Let D be the midpoint of side BC and let E be perpendicular to B. If angle CAD is equal to angle CBE, which is equal to 30 degrees, then what is the measure of angle BAC in degrees?
4	A sphere is inscribed in a cube, and has surface area 36π , and another sphere circumscribes the cube. What is the surface area of the larger sphere?
5	In a 8x8x8 cube, I colored all six faces red. If I then cut up the cube into 512 unit cubes, then what fraction of the unit cubes will have an even number of faces (including 0) colored red?
6	How many regular 2018-gons exist such that two of its vertices are at (0,0) and (1,1)?
7	Two of the side lengths of a triangle are 7 and 21. How many integer values are possible for the third side of the triangle?
8	If a right triangle has sides 6, 8, and x, then what is the positive difference between the least and greatest possible values of x?
9	What is the minimum possible area of a square with two of its vertices at (0,0) and (0,4)?
10	<p>If the area of the entire figure is 45, then what is the length of the diagonal line starting at the bottom left corner of the figure traversing to the top right corner? Assume that the figures shown are squares.</p> 