Problemaths Series 2

19 October 2012

Problemath 4

Is it possible to colour each of the points on the Euclidean plane in either red of blue in such a way that none of the four vertices of a rectangle are of the same colour?

Problemath 5

In the Euclidean plane, the distance of a point p to three of the vertices of a square are 1, 2 and 3 respectively. What is the length of one side of this square?

Problemath 6

What is the value of $\displaystyle\sum_{k=1}^{2012} \cos^2\left(\frac{k\pi}{2012}\right)$?