UPSC PROBLEM SET 2

Problem 1

Can you put six points on the plane, so that the distance between any two of them is an integer, and no three are collinear?

Problem 2

The hands of an accurate clock have lengths 3 and 4. Find the distance between the tips of the hands when that distance is increasing most rapidly.

Problem 3

Prove or disprove that there exists a positive real number u such that $[u^n] - n$ is an even integer for all positive integers n.

Here $[x]$ denotes the greatest integer less than or equal to x.