1. A **cycle graph** is a graph that is just a single big cycle. Every vertex has degree 2, and there are the same number of vertices and edges.

   Consider a cycle graph of size n where every vertex has a numerical value associated with it. Design an $\mathcal{O}(\log n)$ divide-and-conquer algorithm that finds and returns the value of a **local minimum** in it. A vertex is a local minimum if its value is less than those of both its neighbors. You may assume that all values are distinct.

   The cycle graph is represented as an array of numbers. (You can imagine that the end of the array wraps around so that the last value is adjacent to the first.)