

Problem for 1998 March

proposed by Professor Bill Nico

Develop a method or write a computer program to solve the following problem.

Suppose n is an integer, $3 \leq n$, and $s_1, s_2, s_3, \dots, s_n$ are n positive real numbers. Determine whether there exists a circle which can be circumscribed about a polygon with sides of lengths $s_1, s_2, s_3, \dots, s_n$; and, if so, find (an accurate approximation of) the radius.

In particular, does there exist a circle which can be circumscribed about a polygon with sides of lengths $1, 2, 3, \dots, 10$; and, if so, what is (an accurate approximation of) the radius?