NUM I 23-24: Assignment 3

Write a Fortran performing the following tasks:

1) Write a real function with input a real value a and an integer value n and returning the following expression:

$$f(a,n) = \sin^2(\pi*(a/n))$$

2) Prompt the user for an integer value m
3) Allocate a real array x of dimension 1 and size m+1 and initialize it to the evenly spaced values in between [0.0, 2.0*m]
4) Allocate a real array y of dimension 1 and of size equal to the size of array x and store in it the values of f(x,m) for each element of x
5) Print an header line concatenating the two strings:
   'This is the result of' 'the function f(x,m) = (sin(pi*(x/m)))**2'
   with a space in between
5) Print in two columns element by element the values of arrays x, y

HINT: The value of π can be obtained by using the expression pi = 4*atan(1.0)
BONUS: Plot the function values (x,y) and send in the figure.

Send the source code to <ggiulian@ictp.it> by September 24th