1. Write a program to calculate the sum of the squared inverse ($1/n^2$) for the n first natural numbers. Check by increasing n that the sum converges to $\pi^2/6$. How many terms must be included in order the error to be less than 0.0001?

2. Write a Fortran program to compute the dot and the cross products of two vectors (given as input) of $\mathbb{R}^3$.

3. Write a Fortran program to calculate the product of the two matrices given as input. The input should also include the dimensions of the input matrices, so that the first step in the program will be to check whether such matrices can actually be multiplied.

4. Write a Fortran program to sort a set of numbers in ascending order.