

## Programming Assignment: Option 1

- The natural number,  $e$ , can be approximated using:

$$e \approx \sum_{n=0}^m \frac{1}{n!}$$

for some integer  $m$ .

- Write a program to approximate  $e$  to within  $10^{-5}$ . How many iterations are necessary?

## Programming Assignment: Option 2

- Write a program to compute  $\pi$ . Starting with this:

$$u = 2$$

$$v = -\frac{1}{\sqrt{2}}$$

Each iteration replace  $u$  with  $u/v$  and replace  $v$  with

$$\sqrt{(1+v)/2}$$

How many iterations are required to be within  $10^{-5}$  of  $\pi$ ?