CSE108
LW02

For any integer n>0, n! is defined as the product n x n-1 x n-2 ... x 2 x 1. 0! is defined to be 1. It is sometimes useful to have a closed-form definition instead; for this purpose, an approximation can be used. R. W. Gosper proposed the following such approximation formula:

$$n! \approx n^n \mathrm{e}^{-n} \sqrt{2\pi n + \frac{1}{3}}$$

Create a program that reads n values from an input file (input.txt) and write the approximate factorial results to the output file (output.txt). Use FILE * for defining the input and output files. Your program should work for the given input file below:

input.txt
1
3
4
5
15

Your output file should be similar to the our sample output file, below.

output.txt
```
  1! equals approximately                0.95.
  3! equals approximately                5.89.
  4! equals approximately               23.66.
  5! equals approximately              118.64.
 15! equals approximately  1302728358853.38.
```

Be sure to use a named constant PI, and use the approximation 3.14159265.
Do not use any loops or user defined functions is this labwork.
Summit three files: a source file (LW02_06104307.c), an input file (input.txt) and an output file (output.txt).