```c
/************************************************************************/
/*                                                                      */
/*    A sample solution for labwork 2.                                  */
/*                                                                      */
/*                                                                      */
/************************************************************************/

/* Include libraries */
#include <stdio.h>
#include <math.h>

/* Macro definition for PI */
#define PI 3.14159265

int main()
{
	/* Variable decleration */
	int n;
	double result;
	FILE * inputFile, * outputFile;

	/* Open files */
	inputFile = fopen("input.txt", "r");
	outputFile = fopen("output.txt", "w");

	/* Read an input value (n) from input file */
	fscanf(inputFile, "%d", &n);
	/* Compute factorial */
	result = pow((double)n, n) * exp((double)-n) * sqrt(2 * PI * n + 1.0 / 3.0);
	/* Print factorial result to output file */
	fprintf(outputFile, "%2d! equals approximately %16.2f.\n", n, result);

	fscanf(inputFile, "%d", &n);
	result = pow((double)n, n) * exp((double)-n) * sqrt(2 * PI * n + 1.0 / 3.0);
	fprintf(outputFile, "%2d! equals approximately %16.2f.\n", n, result);

	fscanf(inputFile, "%d", &n);
	result = pow((double)n, n) * exp((double)-n) * sqrt(2 * PI * n + 1.0 / 3.0);
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	fscanf(inputFile, "%d", &n);
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	fprintf(outputFile, "%2d! equals approximately %16.2f.\n", n, result);

	fscanf(inputFile, "%d", &n);
	result = pow((double)n, n) * exp((double)-n) * sqrt(2 * PI * n + 1.0 / 3.0);
	fprintf(outputFile, "%2d! equals approximately %16.2f.\n", n, result);

	/* Close files */
	fclose(inputFile);
	fclose(outputFile);

	return 0;	/* return 0 indicates that everything is okey */
}
```