Run on MacOS

Integer overflow occurred when 1000000000 was multiplied with 3

Integer overflow did not occur occur when 1000000000 was multiplied with 2

All factorials from 1 onwards are being computed. The first factorial for which integer type overflows, will be reported
Integer overflow has occurred while computing factorial of: 13

Fibonacci sequence of lengths from 1 onwards are being computed. The first sequence for which integer type overflows, will be reported
Integer overflow has occurred while computing fibonacci of sequence length: 46

The program is going to implement division by zero. This will crash the program. If you want to implement then type 'cont'. Type anything else to skip this program.

Floating Overflow : USING FLAG
At 309th iteration, the floating point overflowed
Hence double overflowed at 10^309 value

Floating Overflow : USING DIVISION
At 309th iteration, the floating point overflowed
Hence double overflowed at 10^309 value

inf
Positive Infinity value has been detected and tested after generation
-inf
Negative Infinity value has been detected and tested after generation
nan
NAN value has been detected and tested after generation
0
Positive Zero value has been detected and tested after generation
-0
Negative Zero value has been detected and tested after generation

Floating Operations : INFINITY
Value of 1/x where x is infinity is: 0
Positive Zero
Value of sin(x) where x is infinity is: nan
NAN
Value of exp(x) where x is infinity is: inf
Positive Infinity

Floating Operations : NEGATIVE INFINITY
Value of 1/x where x is -infinity is: -0
Negative Zero
Value of sin(x) where x is -infinity is: nan
NAN
Value of exp(x) where x is -infinity is: 0
Positive Zero

Floating Operations : NAN
Value of 1/x where x is NAN is: nan
NAN
Value of sin(x) where x is NAN is: nan
NAN
Value of exp(x) where x is NAN is: nan
NAN

Propagation and Interaction of INF, NINF and NAN with each other and +0,-0
Value of Positive Infinity + Positive Infinity is: inf
Positive Infinity
Value of Positive Infinity + Negative Infinity is: nan
NAN
Value of Positive Infinity + NAN is: nan
NAN
Value of Positive Infinity + Positive 0 is: inf
Positive Infinity
Value of Positive Infinity + Negative 0 is: inf
Positive Infinity
Value of Positive Infinity - Positive Infinity is: nan
NAN

Value of Positive Infinity - Negative Infinity is: inf
Positive Infinity
Value of Positive Infinity - NAN is: nan
NAN
Value of Positive Infinity - Positive 0 is: inf
Positive Infinity
Value of Positive Infinity - Negative 0 is: inf
Positive Infinity
Value of Positive Infinity * Positive Infinity is: inf
Positive Infinity
Value of Positive Infinity * Negative Infinity is: -inf
Negative Infinity
Value of Positive Infinity * NAN is: nan
NAN
Value of Positive Infinity * Positive 0 is: nan
NAN
Value of Positive Infinity * Negative 0 is: nan
NAN
Value of Positive Infinity / Positive Infinity is: nan
NAN
Value of Positive Infinity / Negative Infinity is: nan
NAN
Value of Positive Infinity / NAN is: nan
NAN
Value of Positive Infinity / Positive 0 is: inf
Positive Infinity
Value of Positive Infinity / Negative 0 is: -inf
Negative Infinity

Value of Negative Infinity + Positive Infinity is: nan
NAN
Value of Negative Infinity + Negative Infinity is: -inf
Negative Infinity
Value of Negative Infinity + NAN is: nan
NAN
Value of Negative Infinity + Positive 0 is: -inf
Negative Infinity
Value of Negative Infinity + Negative 0 is: -inf
Negative Infinity
Value of Negative Infinity - Positive Infinity is: -inf
Negative Infinity
Value of Negative Infinity - Negative Infinity is: nan
NAN
Value of Negative Infinity - NAN is: nan

NAN
Value of Negative Infinity - Positive 0 is: -inf
Negative Infinity
Value of Negative Infinity - Negative 0 is: -inf
Negative Infinity
Value of Negative Infinity * Positive Infinity is: -inf
Negative Infinity
Value of Negative Infinity * Negative Infinity is: inf
Positive Infinity
Value of Negative Infinity * NAN is: nan
NAN
Value of Negative Infinity * Positive 0 is: nan
NAN
Value of Negative Infinity * Negative 0 is: nan
NAN
Value of Negative Infinity / Positive Infinity is: nan
NAN
Value of Negative Infinity / Negative Infinity is: nan
NAN
Value of Negative Infinity / NAN is: nan
NAN
Value of Negative Infinity / Positive 0 is: -inf
Negative Infinity
Value of Negative Infinity / Negative 0 is: inf
Positive Infinity

Value of NAN + Positive Infinity is: nan
NAN
Value of NAN + Negative Infinity is: nan
NAN
Value of NAN + NAN is: nan
NAN
Value of NAN + Positive 0 is: nan
NAN
Value of NAN + Negative 0 is: nan
NAN
Value of NAN - Positive Infinity is: nan
NAN
Value of NAN - Negative Infinity is: nan
NAN
Value of NAN - NAN is: nan
NAN
Value of NAN - Positive 0 is: nan
NAN

Value of NAN - Negative 0 is: nan
NAN
Value of NAN * Positive Infinity is: nan
NAN
Value of NAN * Negative Infinity is: nan
NAN
Value of NAN * NAN is: nan
NAN
Value of NAN * Positive 0 is: nan
NAN
Value of NAN * Negative 0 is: nan
NAN
Value of NAN / Positive Infinity is: nan
NAN
Value of NAN / Negative Infinity is: nan
NAN
Value of NAN / NAN is: nan
NAN
Value of NAN / Positive 0 is: nan
NAN
Value of NAN / Negative 0 is: nan
NAN

0
Positive Zero value has been detected and tested after generation
-0
Negative Zero value has been detected and tested after generation
Value of log(x) where x is +0 is: -inf
Negative Infinity
Value of log(x) where x is -0 is: -inf
Negative Infinity

Value of sin(x)/x where x is +0 is: nan
NAN
Value of sin(x)/x where x is -0 is: nan
NAN

Value of sin(x)/|x| where x is +0 is: nan
NAN
Value of sin(x)/|x| where x is -0 is: nan
NAN

Value of sin(1.23456789012345x)/x where x is +0 is: nan

NAN

Test for gradual underflow by using (X-Y) operation
Hit for iteration 22
X and Y were initially set to 4.50e-300 and 4.51e-300 and their substraction (x-y) was calculated.
Then both X and Y were divided by 10, so reach the minimum for double precision floating point
At iteration number 22, both the conditions (X==Y) and (X-Y == 0) got true which means the gradual underflow is supported in MacOS

Test for gradual undeflow by using (X/Y) operation
Hit for iteration 19
X and Y were initially set to 4.50e-300 and 4.51e-300 and their division (x/y) was calculated.
Then both X was divided by 20, and Y was divided by 10 so that they reach the minimum for double precision floating point
At iteration number 19, both the conditions (X==Y) and (X-Y == 0) got true which means the gradual underflow is supported in MacOS

Pi is 3.14159265358979323851280895941