

Name: _____

High-level Language Programmer's View

main:

maxNum = 3
maxPower = 4

CalculatePowers(maxNum, maxPower)
(*)

...

end main

**CalculatePowers(In: integer numLimit,
integer powerLimit)**

integer num, pow

for num := 1 to numLimit do

for pow := 1 to powerLimit do

print num " raised to " pow " power is "
(**) Power(num, pow)

end for pow

end for num

end CalculatePowers

integer **Power(In: integer n, integer e)**

integer result

if e = 0 then

result = 1

else if e = 1 then

result = n

else

result = Power(n, e - 1) * n (***)

end if

return result

end Power

Run-time Stack

← Snapshot
Here After
Running
Awhile

	(*)	CalculatePowers' Call Frame
return addr.		
numLimit	3	
powerLimit	4	
num	3	
pow	3	
	⋮	Main's Call Frame
maxPower	4	
maxNum	3	

- 1) Trace the next execution of the recursive function Power by showing the run-time stack.
- 2) What is the most number of call frames on the stack at any one time for the **whole** program?