step-wise solution for Towers

test cases and their answers

smallest case
move 1 disk from NY to LA using Chi
solution: move the top disk fro NY to LA

next-to-smallest case
move 2 disks fro m hk to NYc using Anchorage
solution:

move tht top disk Hk → A
move the dop disk Hk → NYC
move the dop disk A → NYC

larger case(s)
move 3 disk

the request that will start the processing
I am asked to create a string holding instructions to move *n* disks from *source* to *target* using *spare*

base case processing
return "move the top disk *S* → *target*"

decision rule
whether $n = 1 \Rightarrow$ use base
otherwise $\Rightarrow$ recufrsive case

recursive case processing, in three sub-parts

recursive abstraction
When I am asked to create a string holding instructions to move *n* disks from *source* to *target* using *spare,*
the recursive abstraction can create a string holding instructions to move *n*-1 disks from *source* to *target* using *spare.*

the leftover piece
move the largest disk

all the processing for a recursive case

When I am asked to create a string holding instructions to move *n* disks from
source to *target* using *spare,*
and the recursive abstraction has provided nstructions to move *n*-1 disks from
source to *target* using *spare.*,
then the remaining part of processing recursive cases requires
instructions to move *n*-1 disks from *source* to *spare* using *target* if needed
move the large S → target
instructions to move *n*-1 disks from *spare* to *target* using *source*
combined by