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CPADS Assignment #1b – Due Wed, 9/18 at the beginning of class

Possible instructions

pu():	Pen Up – does not draw while moving
pd():	Pen Down – will draw when moving
fd(x):	Forward – move forward ***x*** units ('-' moves backwards)
rt(x):	Right turn – turn right ***x*** # of degrees (no movement)
lt(x):	Left turn – turn left ***x*** # of degrees (no movement)
repeat(x):	Repeat the indented instructions ***x*** # of times
incr(x,i):	Increment variable ***x*** by amount ***i*** ('-' decrements)
square(x):	Draws a square of size ***x*** in a counter-clockwise direction, i.e. using left turns. The function begins by putting the pen down and ends by picking the pen up such that the cursor returns to the original position and orientation.

Examples:

To move forward 1 unit:	**fd(1)**
To move backward 2 units:	**fd(-2)**
To turn right 60 degrees:	**rt(60)**
To repeat the indented instructions 3 times:	**repeat(3)**
To increment *x* by 2:	**incr(x,2)**
To decrement *x* by 1:	**incr(x,-1)**
To draw a square of size 2:	**square(2)**

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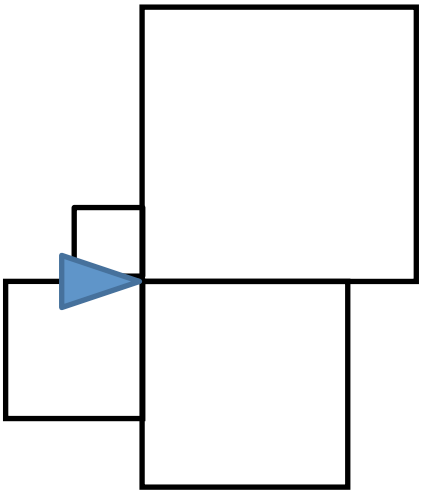
1. Using the **square(x)** function, the **repeat(x),** and **incr(x,i)** instructions to create the following figure (assume the squares are sizes 1, 2, 3, 4).

   - Number each square in the order they are drawn.
   - If you move the cursor outside a **square(x)** function, draw a curved arrow from the starting to the ending location of the movement. Be sure to indicate the final orientation of the cursor following the move.
   - After you have drawn the figure, make sure to return the cursor to its original location and in its original orientation.



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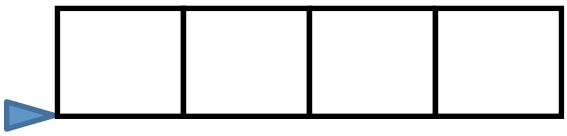
2. Write a function called **Row(x)** to construct a row of ***x*** boxes of size 1 using the **square(x)** and **repeat(x)** commands. You **MUST** return to the cursor to the original starting position once the boxes have been drawn. Note: The example below shows what the figure would look like for **Row(4).**



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3. (Challenge) Use the **Row(x)** (from problem 5), and the **repeat(x)** and **incr(x,i)** commands to draw a pyramid with the base row having **4** boxes and each subsequent row having one fewer boxes until the top row only contains one box as shown in the figure below. The rows are all centered on each other. Figure out how to return the cursor back to its original position relative to the number of rows that were drawn.

   As in Problem 1, check your code by executing it, and indicate the following:
   - Number each square in the order they are drawn.
   - If you move the cursor outside a **square(x)** function, draw a curved arrow from the starting to the ending location of the movement. Be sure to indicate the final orientation of the cursor following the move.
   - After you have drawn the figure, make sure to return the cursor to its original location and in its original orientation.