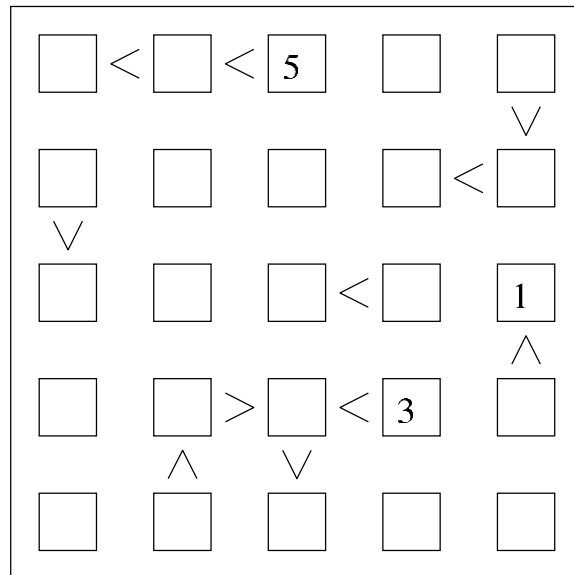


# Homework 07: Heuristics - Puzzles

Due Date: Friday, Mar. 23, 2018, 23:59

30 Points

1. [10 points] The following is a type of puzzle sometimes called a “Futoshiki”. Each box is filled with a digit from 1 to 5, such that every row and column contains one of each such digit. The puzzle starts with a few boxes filled in for you. There are also less than (<) and greater than (>) constraints noted on some of the boxes. Fill in the boxes in a way that meets all of these requirements.



2. [10 points] The following is a type of puzzle sometimes called a KenKen. It is a sudoku like game played on a square grid with  $N \times N$  cells where the objective is to place a digit 1..N into each cell such that no row or column contains duplicate digits. The grids are separated into groups of cells, cages, which specify a value and a mathematical operation. The value must be obtained by applying the operations to the values in the cage. The numbers within a cage may be repeated as long as they do not occur in the same row or column. A single cell cage is a free space with no mathematical restriction and can be filled with any digit 1..9 adhering to the previous restrictions.

<b>20×</b>	<b>60×</b>	<b>5+</b>		<b>1-</b>	
		<b>15×</b>		<b>3-</b>	<b>5-</b>
<b>1-</b>		<b>2÷</b>	<b>3+</b>		
	<b>24×</b>			<b>90×</b>	
		<b>120×</b>		<b>11+</b>	
	<b>1-</b>				

3. [10 points] The following is a type of puzzle sometimes called a “Kakuro” and sometimes called “Cross Sums”. Fill in the empty boxes with digits (1–9). The numbers indicate what the adjacent horizontal or vertical boxes must sum to. You may never repeat a digit in any given sum.

			27	11			10	25
	11	12	8		25	7	11	
43								
23				15				
	10	29	7			13		
11			20				15	17
26					18			
37					16			
13				11				

Your submission for this homework assignment must be made to [Canvas](#).

This homework must be done individually.

Legibility counts.

All assignments must include the following pledge:

*“I have not received unauthorized aid on this assignment. I understand the answers that I have submitted. The answers submitted have not been directly copied from another source, but instead are written in my own words.”*