



# Kenken

A kenken is a grid-filling puzzle. Each square of the  $n$  by  $n$  grid must be filled with a number between 1 and  $n$ . Each number appears exactly once in each row and column. Grids with this property are called Latin squares. Furthermore, some clusters of adjacent squares are surrounded by a heavy line called a cage. Each cage includes a number. A cage with just one square is a freebie. Just fill in the given number. Other cages have a number and an operation. The operation applied to the numbers within the cage yields the given number. For example, a cage marked  $17+$  means the sum of all numbers in the cage is 17. Subtraction and division only occur in cages with two squares, and the result comes from subtracting the smaller number from the larger number, or dividing the larger number by the smaller number. For example, a two-square cage marked  $3-$  could have a 1 and a 4, or 2 and 5, ... and either number could be in either square, as long as their difference is 3. There's only one way to fill in all the squares that satisfies the Latin square constraints and the cage constraints. Just for practice, an example of a small 4 by 4 kenken and its solution are shown below.

On the back of this page is a very difficult 9 by 9 kenken. Give it a try! Work together! You are on your honor not to use a web site or software to cheat! Write your team's solution on the colored paper copy of this sprint and put it in the dropbox in front of the Maybank building by the deadline of 2:00 PM. A winner will be picked at random from the maximally correct entries.

2—	3—		12×
	7+		
36×			
		2÷	

<sup>2</sup> — 2	<sup>3</sup> — 1	4	<sup>12</sup> × 3
4	<sup>7</sup> + 2	3	1
<sup>36</sup> × 1	3	2	4
3	4	<sup>2</sup> ÷ 1	2

<b>30×</b> 5	6	<b>3÷</b> 3	<b>432×</b> 9	<b>6-</b> 7	1	<b>14+</b> 2	4	8
<b>15×</b> 3	5	1	8	6	<b>5-</b> 4	9	<b>9+</b> 7	2
<b>2÷</b> 4	<b>2-</b> 3	5	<b>4-</b> 7	<b>2÷</b> 8	<b>16+</b> 9	<b>48×</b> 6	<b>2÷</b> 2	1
2	<b>8-</b> 1	9	3	4	7	8	<b>1-</b> 6	5
<b>336×</b> 7	8	6	<b>6+</b> 5	1	<b>17+</b> 2	<b>972×</b> 4	3	9
<b>2-</b> 6	<b>18+</b> 4	7	<b>12×</b> 1	2	8	5	9	<b>3</b> 3
8	7	2	6	<b>108×</b> 9	<b>15×</b> 3	<b>6-</b> 1	<b>1-</b> 5	4
<b>8-</b> 9	<b>15+</b> 2	<b>8</b> 8	4	3	5	7	<b>42×</b> 1	6
1	9	4	<b>3-</b> 2	5	<b>17+</b> 6	3	8	7