TEACH YOUR PARENTS KEN鬪KEN!

**KENKEN is fun!** If it wasn't, you wouldn't be doing it so much, right? We want you to share the fun with your parents. (You can teach any other adults you may know who need to stay sharp and have fun doing it.) We've created this little story to help you show anybody how to KENKEN.

Like any puzzle, you start in one place, and by following the rules and using strategy, you get to the point where you are finished. Think of tic-tac-toe, sudoku, or a crossword puzzle. It's blank when you start, but filled with x's, o's, numbers or letters when you're done. What makes KENKEN different is that you use addition, subtraction, multiplication and division - real math - to finish the puzzle.

Hi!. My name is Tetsuya Miyamoto. I'm a Math teacher from Tokyo, Japan. I invented KenKen!

Let's start by looking at the two KENKEN puzzles below.
One is blank, one is complete. What do you notice about them?
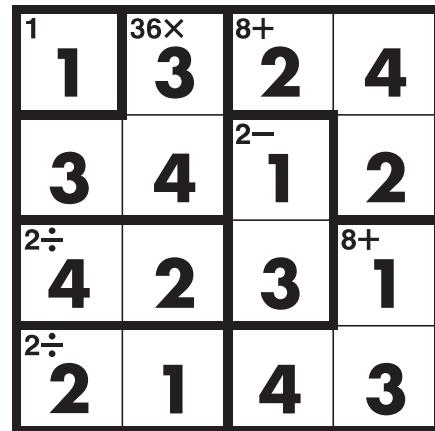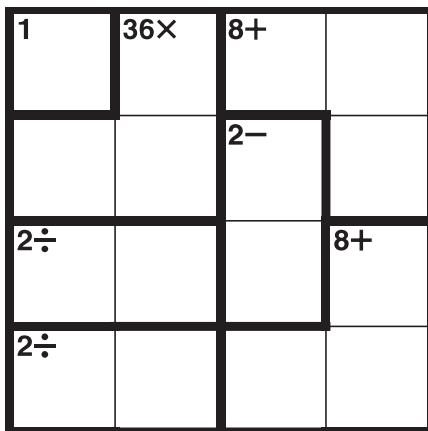
There are 4 rows and 4 columns.

That makes this is a 4x4 KENKEN puzzle. This means you can only use numbers from 1 to 4 to fill in the squares.

Some squares have thicker borders.

These groups of squares are called "cages".

There are small numbers in the upper left corner of some squares.

These are called "target" numbers.

There are signs for math operations next to all of them, except the 1 in the upper left cage.

That means you use the operation shown, and numbers from 1 to 4 inside any cage to get the target number as your answer. Cages of only one square don't need operations to get the target number. Just fill in the cage with that number. (Think of these cages as hints, so always look for them first when you start.)

The numbers 1 to 4 are in each column and row, but appear only once.

That's the most important rule in KENKEN. In a 4 x 4 puzzle, the numbers 1 through 4 can appear only once in any row or column.

There are two cages with the same target number and operation.

True. Two cages ask you to produce a target number of 2 using division. That means more than one combination using 1 through 4 will get that answer: 4 divided by 2, or 2 divided by 1. Which one you choose depends on the numbers in the neighbor squares.

The numbers that produce the target can be entered in any order.

That's right. Look at the 36X cage. 3 X 4 X 3 will equal 36 just like 4 X 3 X 3 would. The order is determined by the need to use each number only once in a row or column.

Next, we'll go through a fresh **KENKEN** puzzle from start to finish.
Look for the **THINKK**™ text that accompanies some steps.
This stands for **T**each. **H**elp. **I**nspire. **N**urture. **K**ENKEN. It's what we're about!

Let's solve this puzzle with 4 columns and 4 rows.

Every square in the grid will contain a number 1-4. No number can repeat within any column or row.

Remember, the small number at the upper-left corner of a square is the target number of the that cage.

The squares within a cage must equal the target number by using the operation shown.

A target number that appears in a cage of a single square is the number to be written in that square. (THINKK™: These have no operation sign. They're like free squares, so fill them in first!)

Put 3 and 4 in the highlighted cages because they are both cages of single squares.

Focus on the red cage. The only combination of two numbers from 1-4 that will multiple to equal 6 is {2,3,}.

Since 3 is in the same row as the 6x square, 2 must be placed in the top square and 3 will go in the bottom square. (THINKK™: numbers that give the target number result can do so in any order, left to right, right to left, up and down or down and up!)

The only combination of two numbers from 1-4 that will add up to 7 is {3,4}

Because we cannot repeat 3 in any column or row, 3 must go in the top square and 4 in the bottom.

Now that the highlighted row has a 2, 3, and 4 in use, the last square must be a 1.

(THINKK™: Even though most of KENKEN requires doing the math, there comes a time in almost every puzzle when the process of elimination can come in handy.)

The only combination of two numbers that can divide to equal 2 while using the number 1 is {1,2}. Place a 2 in the remaining square.

The bottom row has two open squares that must subtract to equal 3. The only numbers not used in this row are {4,1}

4 must go in the left square and 1 must go in the right square so the columns will not have a repeating number.

Focus on the red cage. The only combination of numbers 1-4 that will multiply to equal 6 is {2,3}.

In order to not repeat a number in any column, 2 must go in the left square and 3 must go in the right square.

The orange cage needs two numbers added together to equal 3. The only numbers not used in this column is {1,2}. To avoid repeating numbers 1 must go in the top square and 2 below.

The last two open squares must be 4 and 1. These are the only numbers not used in the top two rows. Congratulations on solving your first kenken!

That's it! Now you can try KENKEN puzzles of many sizes, levels of difficulty and different combinations of math operations. We hope that this guide has been useful in helping even one grownup learn how to KENKEN. Who says you can't learn from kids?

For more about KENKEN, or to sign up for free puzzles, vist www.kenken.com. You can also KENKEN in many newspapers both printed and online. There are many great books of KENKEN puzzles edited by New York Times puzzle editor Will Shortz, among others. There is even a version of KENKEN for the iPhone!

EVERYBODY CAN KENKEN!

www.kenken.com