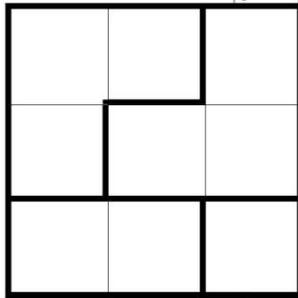


ConunDrum 1: Quantum Deception - The Puzzles

Not all e-readers can cope well with tables, graphics and pictures, hence here is the solution to the conunDrum in a universally readable format.

Patrick's puzzle



9x4x3+3

The puzzle is known as a *KenKen*, similar to a *Killer SuDoku*. The objective is to deduce the values of each square in the puzzle:

- The puzzle is always square and can be any size.
- If puzzle is 3x3 then only digits 1, 2 and 3 are allowed; if the puzzle is 6x6 then only digits 1 through 6 are allowed.
- Each row & column holds one of each digit, no duplicates.
- Squares are grouped into cages of any size and may span several rows &/or columns.
- A cage can have duplicate digits (but not in the same row or column).
- Each cage has a value which is the result of a mathematical operation on the digits in the cage, e.g.
 - “5+” means all the digits in the cage sum to five (possibly: 1+4 or 2+3 or 2+2+1 etc)
 - “6x” means all the digits in the cage when multiplied together make six (possibly: 1x6 or 2x3 or 1x2x3 etc)
 - “2-” can only apply to cages with two digits and means the two digits have a difference of two (possibly: 3-1 or 4-2 etc)
 - “2÷” can only apply to cages with two digits and means the two digits when divided result in two (possibly: 4÷2 or 2÷1 etc)
- A cage of one square would not need an operator.
- You use logic to deduce the values of each square.

Patrick's clue '9x4x3+3' tells you the values and operators of each cage:

9x		4x
3+		3

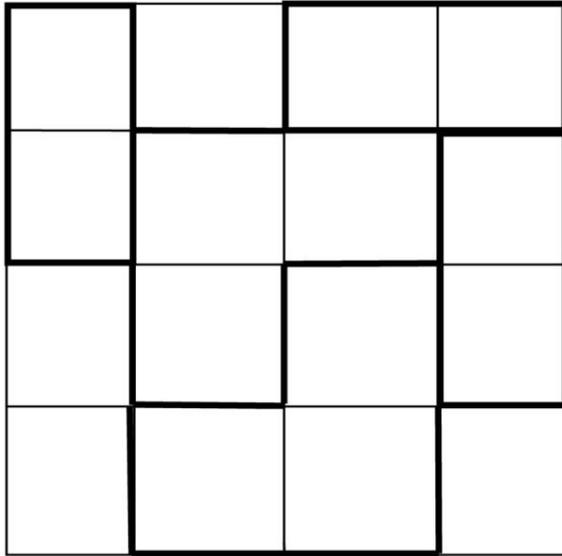
Solving this is trivial and would yield:

9x 1	3	4x 2
3	2	1
3+ 2	1	3

Patrick & Audrey's wedding anniversary is 21st March. Their New England safe combination needs 3 numbers, i.e. '213' from the last row.

Ken's puzzle

Doubling me with old numbers gives Laval, Caraparac etc.



*Cast your unwashed out of sight
Count the men who can fight
Bring gifts to the tent
Make Miriam relent
Aaron must ensure all is right.*

- “Doubling *me*” means the puzzle is a KenKen; “*me*” refers to *Ken Rourke*, who set the puzzle.
- “*old numbers*” refers to the Book of Numbers in the Old Testament.
- “*Laval, Caraparac etc.*” are palindromic place names.
- 4 by 4 puzzle means only digits 1,2,3,4 are used.
- Each clue refers to a chapter in the Book of Numbers:
 - Chapter 5: The LORD said to Moses, “Command the Israelites to send away from the camp anyone who has a defiling skin disease or a discharge of any kind, or who is ceremonially unclean because of a dead body.”
 - Chapter 1: Moses is told by the Lord at Desert of Sinai to count every man who is fighting fit.
 - Chapter 7: Moses receives gifts from everyone at the completed tabernacle.
 - Chapter 12: Miriam and Aaron began to talk against Moses because of his Cushite wife, and Miriam had to apologise.
 - Chapter 18: The LORD said to Aaron, “You, your sons and your family are to bear the responsibility for offenses connected with the sanctuary, and you and your sons alone are to bear the responsibility for offenses connected with the priesthood.
- The answers to the clues are assigned to the cages, assume they are in order of top to bottom.
- No mathematical operators (+x÷) are given in the clues, but they are deducible:
 - “5” could only be “5+”, i.e. 1+4 or 2+3
 - “1” could only be “1-”, i.e. 2-1 or 3-2 or 4-3
 - “7” could only be “7+”, i.e. 1+2+4 or 1+3+3 or 2+2+3
 - “12” could only be “12x”, i.e. 3x4
 - “18” could only be “18x”, i.e. 2x3x3

5+		1-	
	7+		12x
		18x	

- “18x” i.e. 2x3x3 can only be arranged one way to avoid duplicate values in a row or column.
- “12x” i.e. 3x4 can now only be arranged one way.
- “1-” can now only be 2-1 as it cannot hold a 3 without duplication in a column, so it can only be arranged one way.
- “5+” must now be 2+3 and can only be arranged one way.
- “7+” can now only be 1+2+4 as it cannot hold a 3 without duplication in a column, so it can only be arranged one way.

5+ 3		1- 1	2
2	7+ 1	4	12x 3
	2	18x 3	4
	3	2	

- Row 1 completes with a 4.
- Column 4 completes with a 1.
- Column 1 completes with a 1 and a 4.
- The KenKen is solved.

⁵⁺ 3	4	¹⁻ 1	2
2	⁷⁺ 1	4	^{12x} 3
1	2	^{18x} 3	4
4	3	2	1

- The location (of the hidden computer) is a palindrome, but a numerical one.
- Reading the numbers from the puzzle (left-to-right, top-to-bottom) gives 3412214312344321 which is two palindromes of 34122143 and 12344321.
- Latitude and longitude of a place are often given in degrees and minutes, e.g. N50° 22' E23° 10' and sometimes with seconds and even decimals of seconds for more accuracy. A more convenient way of expressing these is as decimals of degrees and the more decimal places used the more accurate the location is, e.g. 6 decimal places gives an accuracy of 4 inches.
 - 1 degree is about 69 miles, equals 69x5280x12 inches, about 4.4 million inches
- So the puzzle location is at latitude 34.122143 and longitude 12.344321. Key these into Google Maps and you'll find a spot in the Mediterranean Sea about 100 miles east of Tunisia and 100 miles north of Libya, roughly 250 miles south-south-west of Malta.
- Happy hunting!