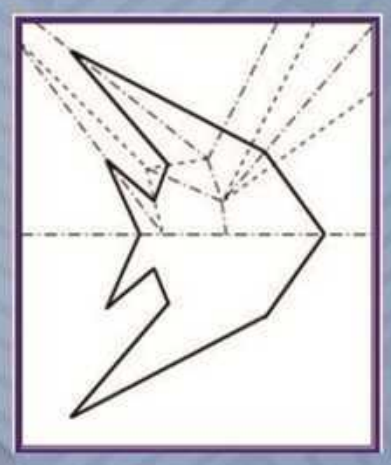
Fold & Cut Theorem (1998. E. Demaine, M. Demaine, A. Lubiw)



湘數

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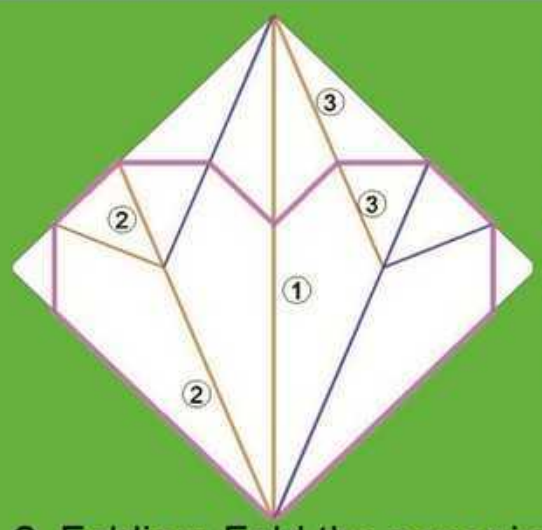
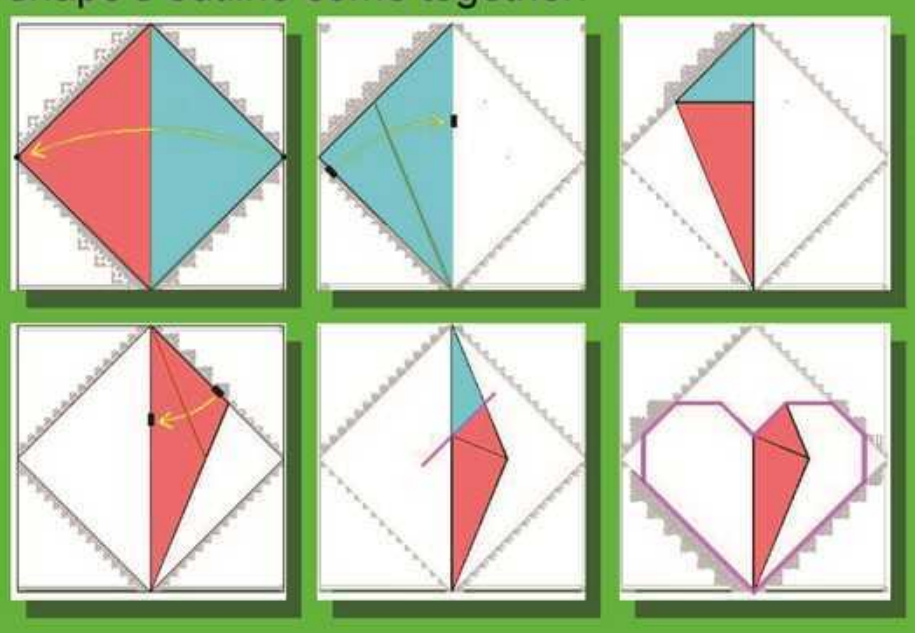


Imagine you've got a piece of paper and a pair of scissors. The Fold and Cut theorem is like a magic trick in math and origami (the art of paper folding) that says you can take any shape with straight edges (like stars, polygons, etc.) and, through a series of folds, cut it out with a single straight snip of the scissors.

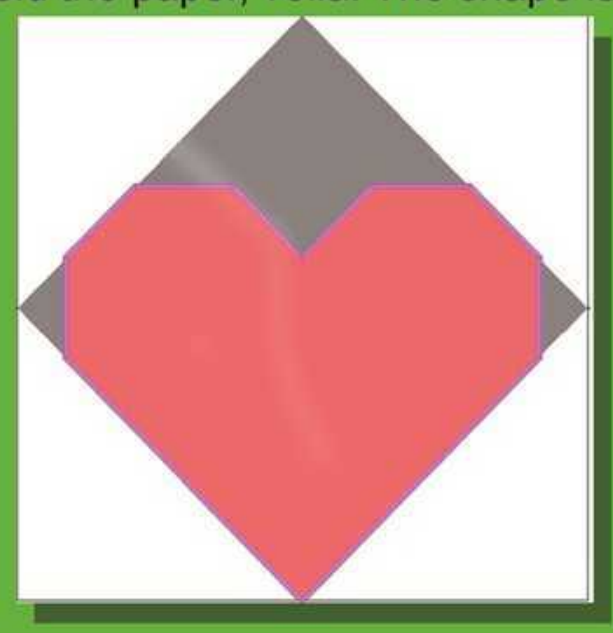
Here's how it breaks down:

1. The Shape: Pick a shape you want to cut out. It can be anything with straight lines.

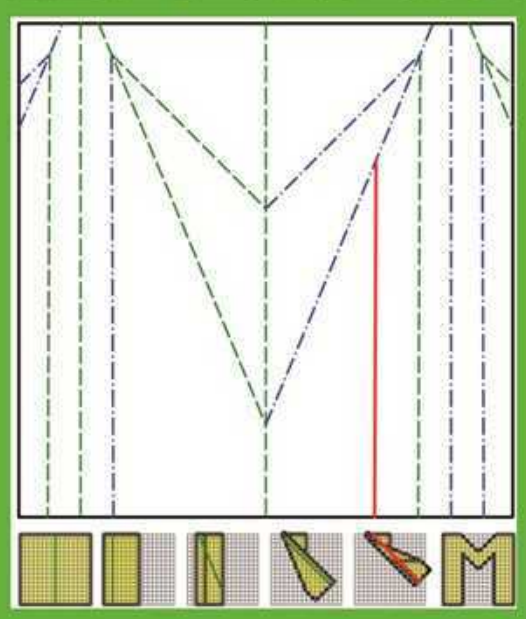
2. Folding: Fold the paper in a way that all parts of the shape's outline come together.

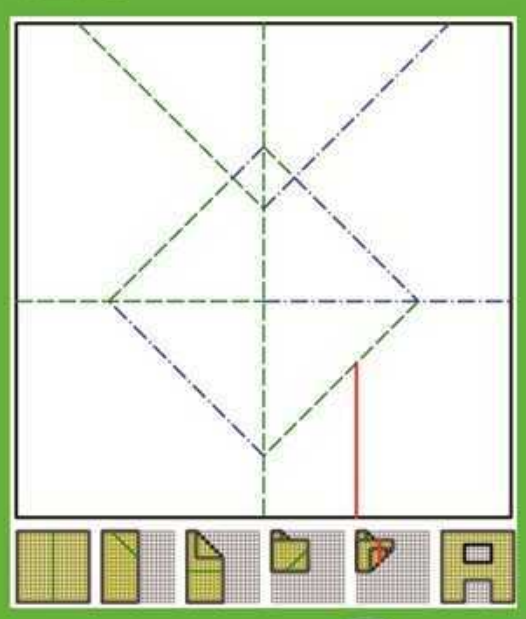


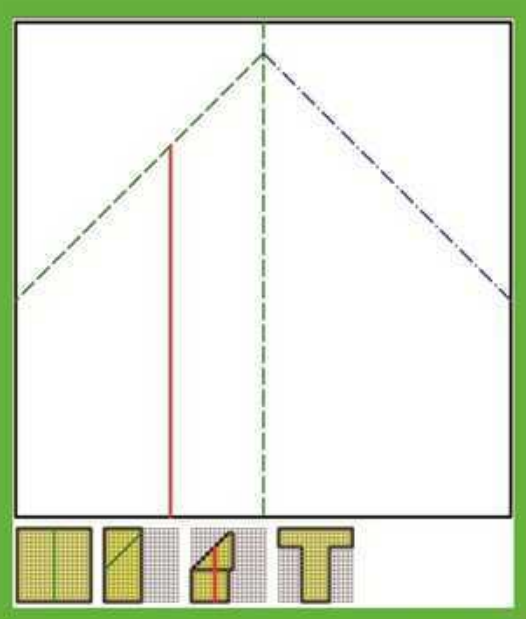
3. Cutting: Once it's folded, make one straight cut. When you unfold the paper, voilà! The shape is there.

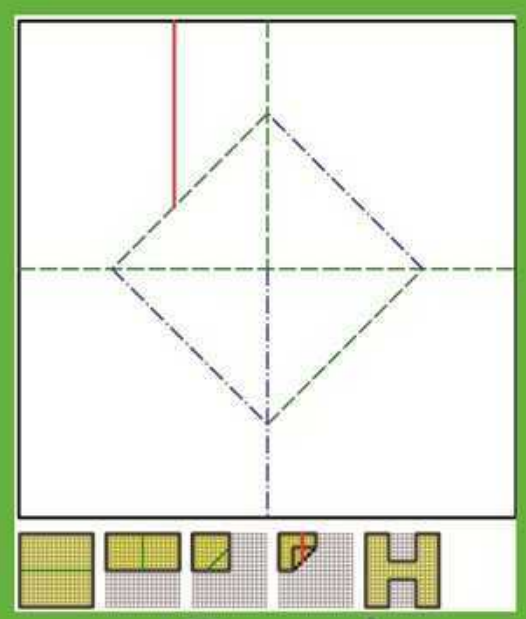


LET'S TRY MORE !









MATH IS FUN ?=+×÷%×?=×÷

MEET THE LARGEST KNOWN PRIME : IT'S GOT 41 MILLION DIGITS !

Finding prime numbers, which are only divisible by themselves and 1, gets harder as the digits get bigger.

Luke Durant, 36, has discovered the new largest prime number,

$$2^{136,279,841} - 1$$

, standing at 41 million digits long.

Those who discover a new Mersenne prime number win £2,000 – but it took a year's worth of work and £2,000,000 of Luke's own money.

WHY DO WE SEARCH FOR VERY LARGE PRIME NUMBERS?

Prime numbers, especially large ones, play a key role in cryptography, the science of encoding and decoding information. Modern encryption systems rely on the fact that it's extremely difficult to factor large numbers into primes.As encryption becomes more sophisticated, larger primes could be used to create even more secure systems.

MATHEMATCIS IS BEAUTIFUL

Consider the following **Lee Sallows**'s magic board. Select any number on the board and spell it out, letter by letter.

Add the corresponding numbers on *white squares* and *subtract* those on *yellow squares*. The result will always be + or – the number we choose. For example,

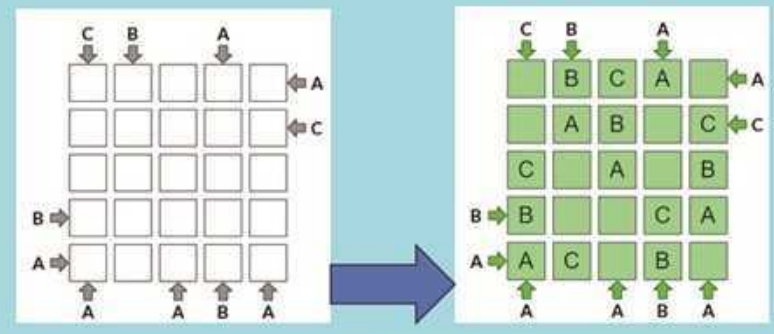
E 4	I 17	N 2	S 16
L 24	F 9	T 20	R 6
W 25	U 12	G 22	O 7
V 1	X 27	Y 11	H 3

TWELVE leads to 20 – 25 – 4 + 24 + 1 – 4 = **12**
THREE leads to 20 – 3 – 6 – 4 – 4 = **3**

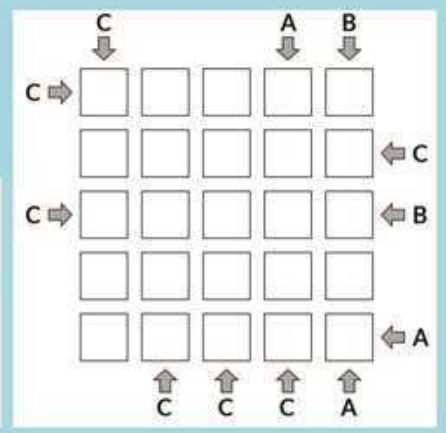
#3

ABC View

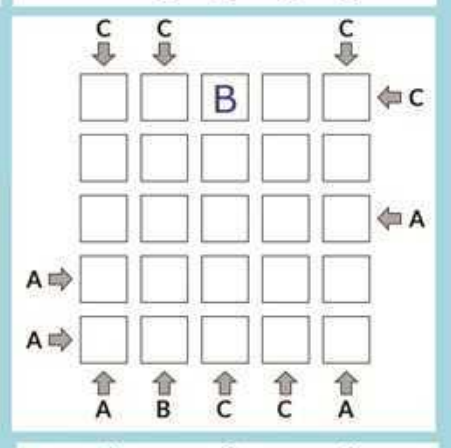
Objectives / Rules
- Fill every row and column with exactly one A, B, and C (and two blank squares).
- The clues tell you which letter appears first in that direction in each row or column.



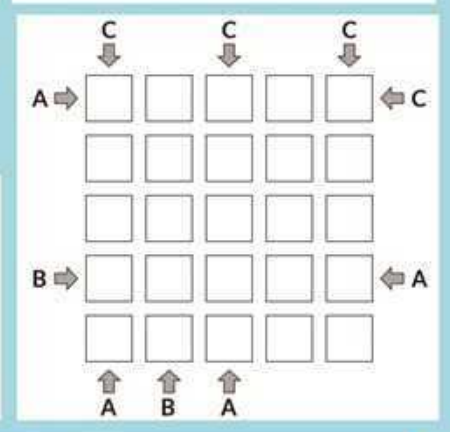
Game 1



Game 2



Game 3



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