

Creative Puzzle Thinking

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Problem 1:

“An odd number plus an odd number is an even number, and an even number plus an odd number is an odd number. OK?”

“OK.”

“An even number plus an even number is an even number. OK?”

“Of course.”

“An odd number times an odd number is an odd number, and an odd number times an even number is an even number. OK?”

“Yes.”

“Then an even number times an even number is an odd number. OK?”

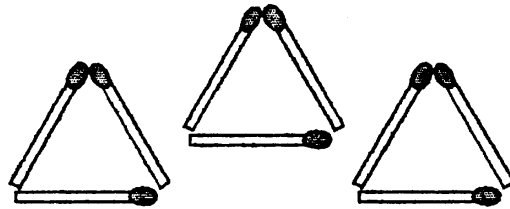
“No! It is an even number.”

“No! It is an odd number! I can prove it!”

How?

Problem 2:

Move two matches so that no triangle remains.



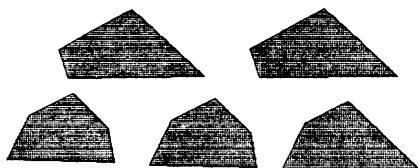
Problem 3:

What number belongs at ? in this sequence?

24	28	33	34	32	36	35	46	52	53	
13	11	17	16	18	14	22	?	33	19	24

Problem 4:

Arrange the following five pieces to make the shape of a star.

**Problem 5:**

Calculate the expansion of the following 26 terms.

$$(x - a)(x - b)(x - c)\dots(x - y)(x - z)$$

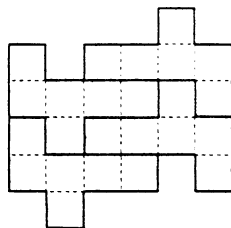
Problem 6:

Which two numbers come at the end of this sequence?

2, 4, 6, 30, 32, 34, 36, 40, 42, 44, 46, 50, 52, 54, 56, 60, 62, 64, 66, x , y

Problem 7:

The figure shown here is the solution to the problem of dividing the figure into four identical shapes. Can you divide the figure into *three* identical shapes?

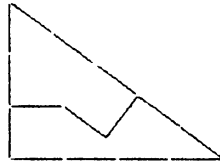
**Problem 8:**

A 24-hour digital watch has many times that are palindromic. For example, 1:01:01, 2:41:42, 23:55:32, 3:59:53, 13:22:31, etc. (Ignore the colons.) These curious combinations occur 660 times a day.

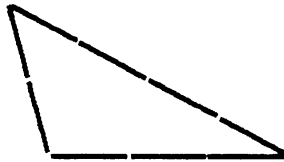
- (1) Find the closest such times.
- (2) Find the two palindromes whose difference is closest to 12 hours.
- (3) Find the longest time span without a palindromic time.

Problem 9:

A right triangle with sides 3, 4, and 5 matchsticks long is divided into two parts with equal area using 3 matchsticks.

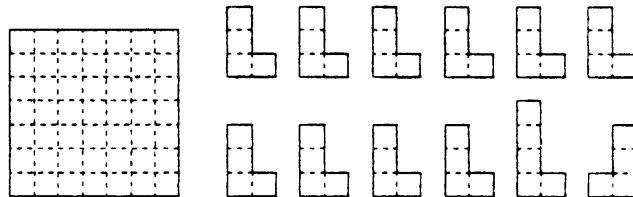


Can you divide this triangle into two parts with equal area using only 2 matchsticks?



Problem 10:

Cover the 7×7 square on the left with the 12 L-shaped pieces on the right. You are not allowed to turn over any of the pieces, but you may rotate them in the plane.



Problem 11:

Using as few cuts as possible, divide the left-hand shape and rearrange the pieces to make the right-hand shape. How many pieces do you need?

