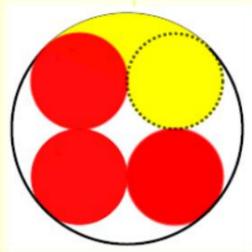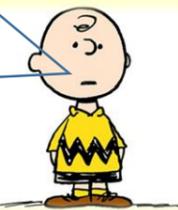| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUN. |
|---|---|---|---|---|---|---|

**N O V E M B E R**

**1**

**2**

The figure shows four circles of radius 1 inscribed in a larger circle.
What is the area of the yellow zone?

**3**

Three friends decide to sell orange granite at the entrance of a sports stadium. They bought oranges and sugar and paid € 50. In addition, they paid € 100 for the rental of tables, purchase of glasses and drinking straws. They calculated to get 250 glasses of granite. How much should they sell each glass for to make a 25% profit?

**4**

From the top of a lighthouse located 127.5 m above sea level, you can see the horizon, how far is it from the lighthouse, knowing that a round the world is 40,000 km?

**5**

**6**

We have 12 50-cent euro coins and a one-euro coin. We put them in a circle. Starting with the coin you want, you have to count 13 coins to the right and the one in that place is eliminated. We go back to counting 13 coins starting with the next one, to our right, from which we have just withdrawn. We repeat this operation until we only have one coin. By which currency should we start counting so that the last one we withdraw is the one-euro coin?

**7**

**8**

What is the natural minor that divided by 2, 3, 4, 5, and 6 gives the remainder 1, 2, 3, 4, and 5, respectively?

**9**

Find the naturals so that all their divisors, except 1, are even.

**10**

**11**

Four wounded soldiers have to cross a seriously damaged bridge at night to escape the enemy. The bridge only supports the weight of two soldiers at a time. When two soldiers cross it, they must do so at the speed of the slowest. The four soldiers only have one flashlight that has to be used every time they cross the bridge.
Individually they take 1, 2, 4 and 6 minutes to cross the bridge. What is the minimum time it takes for the four of them to cross it?

**12**

Participants in a television contest must answer 30 questions. In each question if they do well, they get a point. If they fail, half a point is subtracted. If they do not respond, they receive zero points. If a contestant received six points, detail her responses.

**13**

One person has a saddle valued at € 50 and two horses. If you place the chair in the first, its value is twice the second. If you place the chair in the second, its value is triple the first. What is the value of each horse?

**14**

**15**

Each of two vertical poles of different heights located on a flat ground, has a device, in its upper part, that directs a laser beam to the base of the other pole. If the rays cross at a height of 24 m from the ground and if the shortest of the poles has a height of 40 m, what is the height of the tallest pole?

**16**

**17**

I have two coins. One has a 7 on one side and the other has a 10. If we toss the two coins into the air and add the results that appear on their upper sides, we obtain: 11, 12, 16 and 17. What numbers can be the numbers of the two coins?

**18**

**19**

**20**

Two elevators leave from the sixth floor of a building at two in the afternoon and both are going down. The fastest takes a minute to go from one floor to another, while the slowest takes two minutes. The first elevator to reach a floor will have to stop for three minutes to open doors, raise and lower passengers, and close doors. Which elevator gets to the first floor first? At what time will each elevator reach the ground floor?

**21**

**22**

**23**

Find the naturals such that half of their divisors are even and the other half are odd

**24**

Find the pairs of four-digit palindromes whose sum is a five-digit palindrome

**25**

**26**

At home I have an alarm clock that goes back two minutes every hour, while my wristwatch advances one minute every hour. One day I set both clocks to correct times and left the house. When I went back into the house, in the clock on my wrist was 12 at night and, on the other hand, on the alarm clock it was 11 at night. How long was I away from home? At what exact time did you enter the house?

**27**

The product of a two-digit number and its own numbers is 1950. Find this number

**28**

**29**

**30**

Place 1, or –1, in each box on a 4x4 grid so that the product of all the numbers in a row or column is always –1. What is the minimum and maximum amount of –1 that we should put in? What would these quantities be on an nxn grid?