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–	level 2
1	Find a positive integer x such that the sum of the digits of x is greater than 2011 times the sum of the digits of the number $3x$ (3 times x).
2	We say that a four-digit number $\overline{abcd}$ ($a \neq 0$) is *pora* if the following terms are true : • $a \geq b$ • $ab - cd = cd - ba$. For example, 2011 is pora because $20 - 11 = 11 - 02$ Find all the numbers around.
3	In a right triangle rectangle ABC such that $AB = AC$, M is the midpoint of BC. Let P be a point on the perpendicular bisector of AC, lying in the semi-plane determined by BC that does not contain A. Lines CP and AM intersect at Q. Calculate the angles that form the lines AP and BQ.
4	Given n points in a circle, Arnaldo write 0 or 1 in all the points. Bernado can do a operation, he can chosse some point and change its number and the numbers of the points on the right and left side of it. Arnaldo wins if Bernado can´t change all the numbers in the circle to 0, and Bernado wins if he can a) Show that Bernado can win if $n = 101$ b) Show that Arnaldo wins if $n = 102$
5	Determine for which natural numbers n it is possible to completely cover a board of $n \times n$, divided into 1×1 squares, with pieces like the one in the figure, without gaps or overlays and without leaving the board. Each of the pieces covers exactly six boxes. Note: Parts can be rotated. https://cdn.artofproblemsolving.com/attachments/c/2/d87d234b7f9799da873bebec845c721e4567f png
–	level 1
1	The 4 code words $\square * \otimes \quad \oplus \triangleright \bullet \quad * \square \bullet \quad \otimes \oslash \oplus$ they are in some order $AMO \quad SUR \quad REO \quad MAS$

Decrypt

$\otimes \oslash \square * \oplus \triangleright \square \bullet \otimes$

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2 Using only once each of the digits $1, 2, 3, 4, 5, 6, 7$ and 8, write the square and the cube of a positive integer. Determine what that number can be.

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3 In the rectangle $ABCD, BC = 5, EC = 1/3CD$ and F is the point where AE and BD are cut. The triangle DFE has area 12 and the triangle ABF has area 27. Find the area of the quadrilateral $BCEF$.

https://1.bp.blogspot.com/-4w6e729AF9o/XNY9hqHaBaI/AAAAAAAAKL0/eCaNnWmgc7Yj9uV4z29JAvTcW0
s400/may%2B2011%2Bl1.png

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4 Using several white edge cubes of side 1, Guille builds a large cube. Then he chooses 4 faces of the big cube and paints them red. Finally, he takes apart the large cube and observe that the cubes with at least a face painted red is 431. Find the number of cubes that he used to assemble the large cube.
Analyze all the possibilities.

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5 We consider all 14-digit positive integers, divisible by 18, whose digits are exclusively 1 and 2, but there are no consecutive digits 2. How many of these numbers are there?
