






## FIVE PROBLEMS

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These problems are chosen from puzzleup.com 2018 (weekly puzzle competition prepared by Emrehan Halici).

1		<b>A Lottery Ticket</b>  A 6 digit lottery ticket hits the jackpot. Tickets whose numbers differ from the winning ticket with only one digit (54 tickets) get consolation prizes. The jackpot winning number is a prime, and none of the consolation prize winners is a prime number. What is the largest "winning number" that satisfies these conditions ?
2		<b>Fourteen</b>  The sum of the digits of a positive integer is divisible by 14. The sum of the digits of the next integer is also divisible by 14. Find the smallest such integer.
3		<b>11 Footballers</b>  There are 11 footballers, having jersey numbers from 1 to 11. You will divide these football players into groups such that the sums of the jersey numbers of the footballers in all groups will be the same. In how many distinct ways can this be done?  If the question was asked for 7 footballers the answer would be 5: (1-2-4-7, 3-5-6), (1-2-5-6, 3-4-7), (1-3-4-6, 2-5-7), (1-6-7, 2-3-4-5), (1-6, 2-5, 3-4, 7)
4		<b>Balanced Numbers</b>  Let us define "balanced" number as a positive integer with distinct digits, such that half of its digits are odd and the other half are even. How many balanced numbers are there?
5		<b>The Number Cube</b>  Let us place distinct positive integers to the edges of a cube (12 edges) such that, the products of three edges that intersect at any of the vertices (8 vertices) are equal. What is the minimum possible value for this product?

1)971767 - 2)5899999999999999 - 3)79 - 4)4240125 - 5)240