

FINAL ROUND 23.3.2013

1. The price of a certain product is raised by 5%. Later its price is again raised by 5%. How many percents must the price be decreased so that it would be what it originally was? [Give the exact value and an approximate value at the accuracy of one percentage.]

2. An integer n is known to be such that both of the numbers $\frac{n}{8}$ and $\frac{n}{11}$ are larger than two and smaller than three. What number is n ?

3. We define the sequence of Fibonacci numbers as follows: The first number in the sequence is 1, and so is the second number. After these, the next number is always the sum of the previous two. The beginning of the sequence is

1, 1, 2, 3, 5, 8, 13, 21, ...

Is the 2013th Fibonacci number even or odd?

4. Find all numbers x for which

$$x \cdot (x + 1) \cdot (x + 2) = (x + 1) \cdot (x + 2) \cdot (x + 3).$$