**Uzbekistan National Olympiad 2004**

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by shohvanilu

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| **1** | Solve the equation: $[\sqrt{x}+\sqrt{x+1}]+[\sqrt{4x+2}]=18$ |
| **2** | Lenth of a right angle triangle sides are posive integer. Prove that double area of the triangle divides 12. |
| **3** | Given a sequence $a_n$ such that $a_1=2$ and for all positive integer $n\geq 2$ $a_{n+1}=\frac{a_n^4+9}{16a_n}$. Prove that $\frac{4}{5}<a_n<\frac{5}{4}$ |
| **4** | In triangle $ABC$ $CL$ is a bisector($L$ lies $AB$) $I$ is center incircle of $ABC$. $G$ is intersection medians. If $a=BC, b=AC, c=AB$ and $CL\perp GI$ then prove that $\frac{a+b+c}{3}=\frac{2ab}{a+b}$ |