# Euer Characteristic calculation

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Presented Doctoral Thesis is about the algebraic problem-solving using computer. In particular, it is about calculating the number of Morava K-Theory group base elements. The thesis is based on the program, which I used in my Master Thesis (The program, that gave the classification of Abelian subgroups for the given P group).

In current Thesis, the problem of calculating the euler characteristic, using computer is solved. The formula is calculated for all the groups of order 32 as well as for several high order groups. The program, presented in my Thesis, calculates the formula for any large group, But it's more convenient to use for the groups which has up to 1024 elements ( The more elements a group has, more is the number of its Abelian subgroups as well, as the time for the compilation).

### euler characteristic:

$$\mathcal{X}_{n,p}(G) \ = \ \sum_{A \subset G} \frac{|A|}{|G|} * \mu\big(A\big) * \mathrm{x}(A) \quad (*)$$

This Thesis gives the opportunity of performing the formula calculations easily. This can be used in strengthening concrete hypotheses, which can lead to creating of new cryptosystems.