Calculations can be simplified by using natural units:

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimensions** | **Units** | **Geometric Quantities** | **Units** |
| Energy |  | Scalar Potential |  |
| Mass |  | Spinors , |  |
| Length |  | Vectors |  |
| Time |  | Differential |  |

The Lagrangian is an *energy density*, and thus has units of . Based on these units, the possible components of the Standard Model Lagrangian are the following. Not all are, however, actual components.

|  |  |  |
| --- | --- | --- |
| **Actual** | **Invalid** | **Why?** |
|  |  | Potential term |
|  |  | Written as |
|  |  | Written as , |
|  |  | Written as (Yukawa parameter) |
|  |  | Written as , |
|  |  | Does not obey gauge invariance |

Thus, the simplified Lagrangian (with appropriate mathematical scalars and small inferences) can be written as follows: