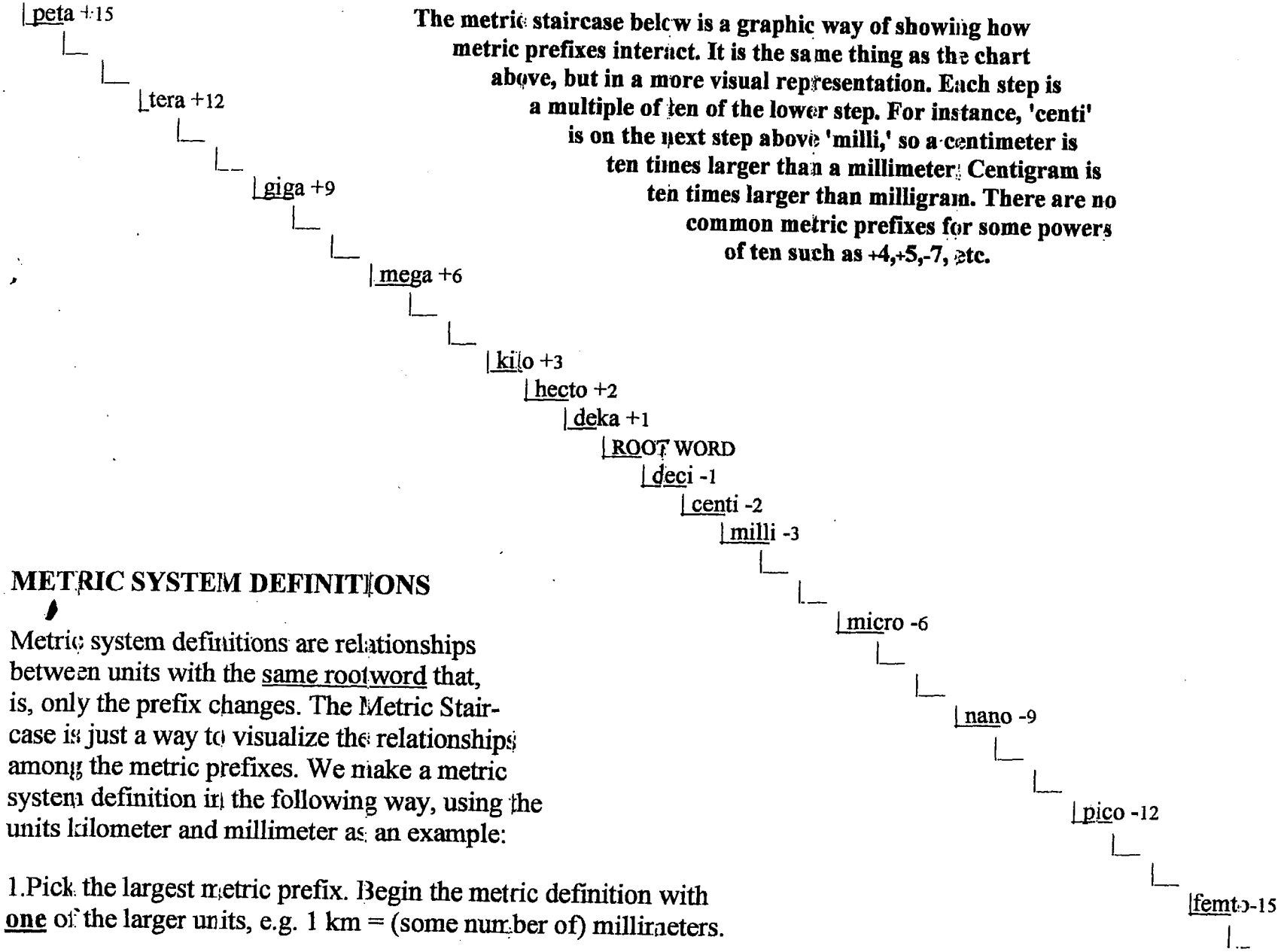


**The metric staircase below is a graphic way of showing how metric prefixes interact. It is the same thing as the chart above, but in a more visual representation. Each step is a multiple of ten of the lower step. For instance, 'centi' is on the next step above 'milli,' so a centimeter is ten times larger than a millimeter. Centigram is ten times larger than milligram. There are no common metric prefixes for some powers of ten such as +4,+5,-7, etc.**

## METRIC SYSTEM DEFINITIONS

Metric system definitions are relationships between units with the same rootword that, is, only the prefix changes. The Metric Staircase is just a way to visualize the relationships among the metric prefixes. We make a metric system definition in the following way, using the units kilometer and millimeter as an example:

1.Pick the largest metric prefix. Begin the metric definition with **one** of the larger units, e.g. 1 km = (some number of) millimeters.

# SI UNITS

## SI Base Units

| Quantity | Name | Symbol |
|---|---|---|
| Length | meter | m |
| Mass | kilogram | kg |
| Time | second | s |
| Electric current | ampere | A |
| Thermodynamic temperature | kelvin | K |
| Amount of substance | mole | mol |
| Luminous intensity | candela | cd |

## Units Derived from SI Base Units

| Quantity | Name | Symbol | Expressed in Base Units |
|---|---|---|---|
| area | square meter | | $m^2$ |
| density | grams/cubic centimeter | | $g/cm^3$ |
| energy | joule | J | $kg \cdot m^2/s^2$ |
| force | newton | N | $kg \cdot m/s^2$ |
| frequency | hertz | Hz | $1/s$ |
| potential difference | volt | V | $kg \cdot m^2/A \cdot s^3$ (W/A) |
| power | watt | W | $kg \cdot m^2/s^3$ (J/s) |
| pressure | pascal | Pa | $kg/m \cdot s^2$ ($N/m^2$) |
| electric charge | coulomb | C | $A \cdot s$ |
| speed | meters/second | | m/s |
| volume | cubic meter | | $m^3$ |