calculate

$$S = \frac{1}{2}ah \tag{28}$$

However, this is really very clear?

$$S = ah \tag{29}$$

Is there a problem with writing it as follows? [9]

Actually, even if written as Eq. (29), all of the coefficients of the formula that expresses the area are simply doubled, so no logical problem arises. The area of a circle is expressed as $2\pi r^2$, but if we think of this as "length of perimeter $\times$ radius", it would be more natural than our formula. This coefficient of 1/2 seems to have been handed down from heaven, but actually it is simply a human convention.

As we can see from this example, when we denote the unit of length as m, although it is convenient to attach the label of m^2 to the coherent unit of area, there is no concrete specification that definition cannot be decide unless a corresponding relationship equation is specified. This is not limited to area, but is clearly true for all derived units.

Of course, Eq. (29) is intentionally and extreme example, and so may not be suitable for use in practice. In mathematics, however, it is an everyday occurrence to have quantities of the same concept, but of the opposite sign and differing by a factor of 2π. Also, in electromagnetics, the fact that the same coherent metric system of units can have units of the same quantity that differ by a factor of 4π in rationalized units and non-rationalized units is indeed this same kind of phenomenon.

The concept of unit coherence is extremely important, but not absolute. Even the International System of Units (SI), which features coherence of units, is filled with problems.

1. Celsius temperature

   In the International System of Units (SI), Celsius temperature is defined in the following way, with ℃ classified as a derived unit.

   "Celsius temperature, t, is defined as $\mathrm{t} = T - T_0$, the difference between the two thermodynamic temperatures T and T_0, where $T_0 = 273.15\mathrm{K}$. The temperature interval or temperature difference may be expressed using either Kelvin or Celsius degree. The unit 'Celsius degree' is equal to the unit 'Kelvin'. "

   Because a unit is "a quantity of the same type that serves as a standard for measuring and representing a given quantity", K and ℃ are algebraically the same. Thus there are two units for the quantity whose dimension is temperature, which is still an exception to the principle of one unit for one quantity, even if the ratio of the two units is 1.

   From the definition of Celsius temperature it is correct to say that "the normal human body Celsius temperature is 37.00K", but that the converse expression, "the normal human body temperature is 37.00 ℃", is incomplete to surely understand.[1]

2. Frequency

   Hertz (Hz) is a unit of frequency that is defined as an inverse of seconds, but carries the warning that it should only be used for periodic phenomena. For example, wind speed must be represented as 30m/s, not as 30 mHz. Because frequency is a quantity that has the dimension [period number(=phase)/time], according to the principle of coherence, it should be Hz = rad/s. Assuming from various formulas, however, it is $\mathrm{Hz} = \Omega_1/\mathrm{s}$, with $\Omega_1 = 2\pi\mathrm{rad}$. If a unit is not coherent, it is very natural that its range of use is limited.