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per cent

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Entry type	Definition
Classification	msc 97D99
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Synonym	percent
Defines	percentage point
Defines	per cent number
Defines	base value
Defines	per cent value

The *per cent* may be in general interpreted to mean a ‘hundredth’. So e.g. 5 per cent is ‘5 hundredths’, i.e. $\frac{5}{100}$.

In practice, giving some number of per cents, one means so many hundredths of a quantity given in the same or being clear from the context; for example, we can say that the illiteracy in the world is about 20 per cent – meaning that 20/100 of the adults of the world cannot read. If we say that the interest (rate) of a loan is 8 per cent, it means that one must pay interest for the loan 8/100 of the amount of the loan in a year.

If a percentage of a quantity has changed e.g. from 12% to 15%, we must not say that it has grown 3% but that it has grown 3 *percentage points*.

Determination of percentage

How many percent a number a is of a second number b ? The answer, the *per cent number* p , is obtained from

$$p = \frac{a}{b} \cdot 100. \quad (1)$$

The number b here is called the *base value* and a the *per cent value*(?). Essentially, the procedure in (1) may be replaced by converting the ratio $\frac{a}{b}$ to hundredths, which can be done formally by multiplying this ratio by $1 = \frac{100}{100} = 100\%$:

$$\frac{a}{b} = \frac{a}{b} \cdot 100\%.$$