Hi.

I would like to know if the electric current, defined by

$$I = nAvQ$$

where

I is the electric current

n is number of charged particles per unit volume (or charge carrier density)

A is the cross-sectional area of the conductor

v is the drift velocity, and

Q is the charge on each particle

Could also be defined in the following form:

$$I = \frac{nQ\,\mathbf{v}}{\Delta\ell}$$

As $\Delta\ell$ is a length element. In other words, can I say that

$$A = \frac{1}{\Delta\ell}$$

And why?

Thanks! ☺