The new reference tables for physics from the North Carolina Department of Public Instruction give equations for velocity and acceleration where “distance” is represented by the symbol $x$. That seems to be a trend among some textbook authors.

There are several symbols that have and are still used to represent distance. The symbol $x$ is one of them. Some textbook authors also represent distance by the symbols $s$ and $r$. In my day, when sitting under an apple tree was a required physics lab, we used $s$ for distance, with $r$ a close second.

The symbol $r$ makes sense for a distance that happens to be a radius, or for a distance in torque problems where $r$ is the length of the torque arm. Therefore, when rotation or a radius might be involved, $r$ is often used for distance. But what about the symbol $s$ for distance?

The symbol $s$ comes to us from the Latin *spatium*, which means … wait for it … **distance**. It is the Latin source for our words like “spatial” and even “space.” In fact, it exists today as a medical term. To a doctor, a *spatium* is a space or cavity within the body. Therefore, *spatium* is our source for the letter $s$ denoting distance. It makes perfect sense now.

What about using $d$ for distance? You see it in simple equations in use in grade school or elementary science courses where the students are not likely to end up in a calculus class. In cases like that $d$ makes some simple sense. But in calculus, the symbol $d$ is used to denote the derivative as in $dy/dx$. Remember, calculus was invented by Isaac Newton in order to do physics. You won’t see $d$ used for distance in a physics class.

The symbol $x$ is emblazoned on our brains as the symbol for “the unknown”. Nobody watched Mulder and Scully because the X-Files were all about the “distance-files”. The symbol $x$ also suggests something on the $x$-axis or the $x$-component of a vector.

Sorry, I just can’t get used to using $x$ for distance. For me, $\Delta s$ will be my preferred way of representing the distance between two point.

Therefore, expect to see….

\[
\begin{align*}
  v & = \Delta s / \Delta t \\
  \Delta s & = v_i \Delta t + \frac{1}{2} a \Delta t^2 \\
  v_f^2 & = v_i^2 + 2a \Delta s
\end{align*}
\]