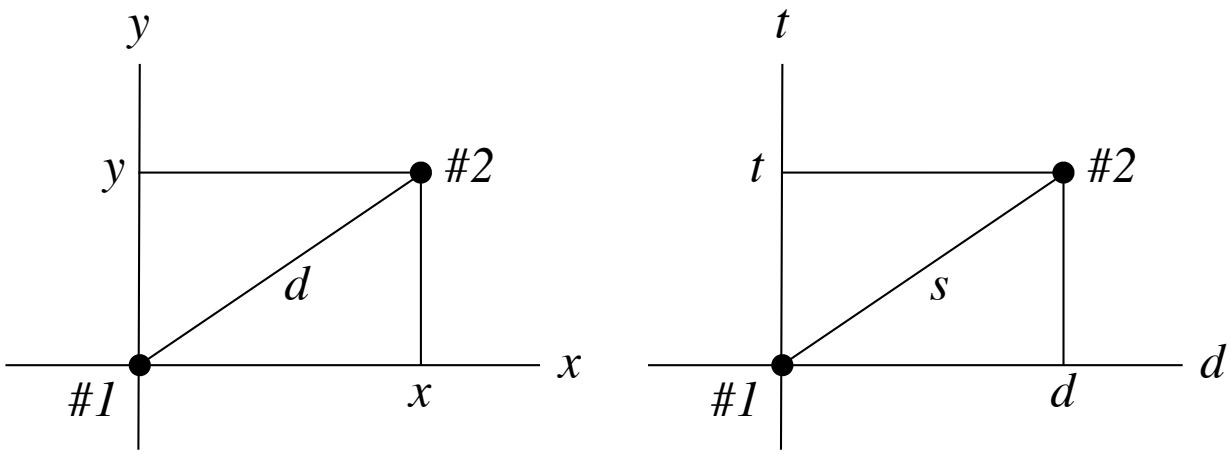
Einstein's Theory of Relativity



d is the separation in space of two **objects**—*s* is the separation in spacetime of two **events**

Pythagoras tells us that: $d^2 = x^2 + y^2$ $(= x^2 + y^2 + z^2,$ in 3 dimensions)

Einstein tells us that: $s^2 = d^2 - t^2$ $\left(= x^2 + y^2 + z^2 - t^2\right)$

Einstein's Theory of Relativity, *complete!*

If Einstein is correct (and having conducted *many* experiments using high-precision clocks we know that Einstein *is* correct), then the **minus sign** means that our second *diagram* is merely *symbolic:* it is the **algebra** (a human invention) that brings out the nature of *time*!

We measure space and time using different units—but Einstein tells us that we really should *not* and as a result, it is has been agreed that there are *exactly* 299,792,458 meters in one second (= *c*, the speed at which light proceeds)—this, today, *defines* the meter!

If we measure *distances* in *meters*, but we decide (as is our custom) to measure time, *not* in meters, but in *seconds*, then $s^2 = d^2 - c^2t^2$ will give *s*, the separation of two events, in *meters*.

What does our Einstein equation *mean*? To find out, consider an example:

two specific events: Event #1: a spaceship leaves the Sun
Event #2: that same spaceship arrives at Earth

Say the spaceship moves at *v* meters per second,
then, it goes a distance $d = v\,t$ in a time *t*, right? So, $s^2 = v^2t^2 - c^2t^2$

s is the separation in space-and-time of these two events: *leaving Sun; arriving Earth*.
But if the spaceship moves at speed *c*, then the separation of our two events is:
$s^2 = c^2t^2 - c^2t^2 = 0$

So, for a photon of light in spacetime there is NO SEPARATION AT ALL between its creation on the Sun, and its disappearance in your retina here on Earth—***the photon does not exist!***

In algebra veritas!