

Re: coordinates and equations.

# Re: coordinates and equations.

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*Source:* <http://sci.tech-archive.net/Archive/sci.physics.relativity/2008-11/msg03367.html>

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- *From:* PD <TheDraperFamily@xxxxxxxx>
  - *Date:* Sun, 30 Nov 2008 13:45:46 -0800 (PST)
- 

On Nov 29, 9:00 am, rbwinn <rbwi...@xxxxxxxx> wrote:

On Nov 28, 6:52 pm, PD <TheDraperFam...@xxxxxxxx> wrote:

On Nov 28, 2:46 pm, rbwinn <rbwi...@xxxxxxxx> wrote:

On Nov 28, 12:55 pm, PD <TheDraperFam...@xxxxxxxx>  
wrote:

On Nov 28, 1:32 pm, rbwinn  
<rbwi...@xxxxxxxx> wrote:

On Nov 28, 9:20 am, PD  
<TheDraperFam...@xxxxxxxx>  
wrote:

On Nov 28,  
9:21 am,  
rbwinn  
<rbwi...@xxxxxxxx>  
wrote:

This  
is  
a  
simple  
way  
to

Re: coordinates and equations.

think  
of  
coordinates  
for  
some  
of  
our  
scientific  
friends.  
See,  
there  
is  
an  
x  
axis  
and  
a  
y  
axis  
and  
a  
z  
axis.  
So  
if  
we  
have  
an  
equation  
that  
says

$$\begin{aligned} &x^2 \\ &+ \\ &y^2 \\ &+ \\ &z^2 \\ &- \\ &c^2t^2 \\ &= \\ &0 \end{aligned}$$

where  
x,  
y,  
and  
z

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are  
coordinates,  
and  
t  
is  
time  
on  
a  
clock  
in  
S,  
the  
frame  
of  
reference,  
and  
c  
is  
the  
speed  
of  
light,  
then  
if  
you  
substitute  
numerical  
values  
into  
the  
equation,  
what  
you  
end  
up  
with  
is  
a  
sphere  
with  
a  
radius  
of  
ct  
with  
its  
center  
at  
the  
origin  
of

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S.

Now  
we  
will  
do  
the  
same  
thing  
with  
another  
set  
of  
coordinates  
S'.

$$\begin{aligned} &(x')^2 \\ &+ \\ &(y')^2 \\ &+ \\ &(z')^2 \\ &- \\ &c^2(n')^2 \\ &= \\ &0 \end{aligned}$$

where  
n'  
is  
the  
time  
on  
a  
clock  
in  
S'.

That's  
interesting,  
Bobby, but  
if you use t  
as a variable  
to denote

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what a  
clock reads,  
then a more  
sensible  
notation is  $t$   
for the time  
read on a  
clock  
stationary in  
 $S$ , and  $t'$  for  
the time  
read on a  
clock  
stationary in  
 $S'$ . If you  
prefer to use  
 $n'$  for the  
clock  
reading in  
 $S'$ ,  
I suppose  
that's your  
prerogative.  
Would you  
care to use  
 $f''$  for the  
clock  
reading in  
 $S''$ , and  $u'''$   
for the  
clock  
reading in  
 $S'''$ ?

Well, you are getting a little  
ahead of the conversation,  
PD. Why  
don't we just let individual  
people decide what  
variables they will  
use, since I am the only  
person who uses these  
variables anyway?

As I said, Bobby, it's your prerogative. I was  
just curious what you  
were intending to use for the time variable as

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measured in  $S''$ ,  $S'''$ ,  
 $S''''$ , and so on.

Scientists  
have  
told  
us  
that  
according  
to  
scientific  
experiments,  
light  
is  
traveling  
at  
 $c=300,000$   
km/sec  
according  
to  
a  
clock  
in  
 $S'$ .  
So  
what  
we  
end  
up  
with  
here  
is  
a  
sphere  
with  
a  
radius  
of  
 $c(n')$   
with  
its  
center  
at  
the  
origin  
of  
 $S'$ .  
I  
hope

Re: coordinates and equations.

this  
will  
help  
some  
of  
our  
scientific  
friends  
to  
understand  
how  
light  
propagates.  
I  
know  
it  
is  
confusing  
to  
them  
because  
there  
is  
no  
length  
contraction  
in  
these  
equations.

Certainly  
there is.  
What do  
you think  
the  
relationship  
between  $x$   
and  
 $x'$  is?

$$x' = x - vt$$

Did you  
think that  
length

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contraction  
would mean  
light  
wouldn't  
propagate in  
a sphere  
with radius  
 $c \times \text{time}$ ?

Maybe it  
would help  
to learn  
what it is  
that  
relativity  
actually  
says,  
Bobby.–  
Hide quoted  
text –

Well, according to Dr.  
Albert Einstein, the light  
would propagate in  
S' as an oblate spheroid as  
seen from S because of the  
length  
contraction.

I'd be curious where you think he says that.  
Einstein I believe made a  
point of saying that light travels isotropically  
at  $c$ , regardless of  
the motion of the source, and regardless of  
reference frame, which  
would seem to fly counter to the notion that  
light would propagate in  
an oblate spheroid.

Perhaps it would help if you had just an  
easily bit better grip on what  
Dr. Albert Einstein said.

Re: coordinates and equations.

Are you saying that Dr.  
Albert Einstein was wrong?  
Robert B. Winn– Hide  
quoted text –

– Show quoted text -- Hide quoted text –

– Show quoted text -- Hide quoted text –

– Show quoted text –

Well, Dr. Einstein said that light would propagate as an  
oblate  
spheroid in the moving frame of reference as seen from the  
frame of  
reference at rest.

I already asked you, Bobby, where you think he says that.

He said it in his book, Relativity, the Special and General Theories.  
Robert B. Winn

I don't believe that, Bobby, and I can't locate such a statement  
anywhere in my copy.

Would you care to check again? Or is checking facts not really  
necessary for you?

PD

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Re: coordinates and equations.