

Re: resolve to perpendicular components, because they are independent

Re: resolve to perpendicular components, because they are independent

Source: <http://sci.tech-archive.net/Archive/sci.physics/2006-01/msg02805.html>

- *From:* Hero.van.Jindelt@xxxxxx
 - *Date:* 25 Jan 2006 04:00:01 -0800
-

Ken S. Tucker wrote:

> Hero.van.Jindelt@xxxxxx wrote:

>> Ken S. Tucker wrote about

>>>>>an orthogonal 4D....

>> "Can You explain, how a fourth dimension can be orthogonal to the

>> three of space, measured in cm^3 ?,

> 3 spatial dimensions and 1 time dimension, is commonly

> called 4D. An *orthogonal* 4D implies 3 orthogonal spatial

> axes x,y,z, and 1 time axis perpendicular to x,y,z.

Ken, again avoiding "body contact", replacing "orthogonal" by "perpendicular".

Your are thinking too much coordinate-minded, 3D with a point of origin. That's how we all are brought up, years of looking at 2D blackboards, Book-illustrations and monitors. With the monitor came "frames", discret time. Continous time displayed one has in math only with life teaching: the movement of the hand can be repeated, different from static looking at the trace, it left to blackboard or in Alexandria-times in the sand.

Nowadays i go this way:

Going from one point to a different point, gives a point and a direction (1D=2P=two points) {and a distance too}.

3 Points, that is -most often - two directions from one point, the difference of directions is called an angle, an oriented one, if we assign order to the directions (f.e. one principal or reference-direction and - in math standard - a left or clockwise turn to the other direction). And 3 points, that is - most often - a plane too (2D=3P).

There are several ways to an right angle.

I'm adding a fourth point (each two on a seperate line without the other two points). So we have another direction, from the plane to the fourth point, a normal. This normal is perpendicular and orthogonal to the plane and also to the two directions, as given before.

Standard orientation in math is left, but this time left-screw (which can include left-clockwise). Illustrated by a right hand, naming the thumb 1, the pointer 2 and the middle finger 3 -this gives a left-clockwise (left on a plane) orientation. Naming the root of the three fingers in the palm 0, one gets a left screw, going from 0 to 1 to 2 to 3. (3D=4P).

Re: resolve to perpendicular components, because they are independent

Re: resolve to perpendicular components, because they are independent

Now, not to forget about all the 4D-talk, most basic:
0D, a point. (0D=1P) !!

In here we all saw lots of 2D pictures of what is named "4D-space" – but that's not what we are talking about. We both talk about a 3D-space and we both can proceed to dynamic geometry: (3D, time). But time being "orthogonal" or "perpendicular" to space or something of it ?

A three-hours-walk can be a distance (with speed known) and ten minutes is displayed by a finger of the hand of a clock changing direction and the tip moving along a distance of $1/6$ th of 2π (length of finger). A coordinate system can display two movements, one – most regular – when one draws the "time"-axis (mostly the x-axis), t being here the independent variable. And when one draws the the graph of a function, the set $\{ (t, f(t)) \mid f \dots \}$ as a line. Is this movement or the time in any way "perp"? Consider the traces left, the projection of any point onto the axes gives a point on the t-axis and one on the y-axis. Both axes perp to each other– but that's space, a picture of time, nit time..... and so forth. so

> > Please show me "an orthogonal 4D".

>

> Ok, ...

That would be great.

> ...maybe you could inform me/us of your background

> in math & physics, especially geometry.

Look into the PS-attachment below.

> A term like

> "orthogonal" can be easy to explain but difficult to define.

> Ken

I put my trust in You.

So after Your answer (and may be a few more posts) at the end, we could] otagai ni rei [.

I hope kenneth.h... is enjoying reading this, and some others too. Any word of You is welcome too.

Regards

Hero

PS

> ...maybe you could inform me/us of your background

> in math & physics, especially geometry.

Actually i'm living in this space and time, i'm talking about. My most prominent teacher was my father, f.e. showing me from a bridge over the railway, how the rails (proper prolonged) meet at infinity, so the train driver doesn't has to worry, that he can't pass the – so to be seen – diminishing distance between the two rails. No border – in finis, what a wonderful universe.

The other teachers, aside from the persons at the blackboard are the same as Yours, Archimedes, Hamilton – You tell me. In physics i told You already about how far i am with Maxwell – and that's symptomatic for me. For a better picture of what i learned, google sp,sm and de.sci.mathematik for my name.

Re: resolve to perpendicular components, because they are independent

Re: resolve to perpendicular components, because they are independent

And a photo is displayed at my website

<http://liz.de>

or, the same:

<http://i-is-no-longer-imaginary.gmxhome.de>

It's most about my biggest achievement so far: there is no imaginary axis, (even Riemann just talks about the y -axis, link was given) or a complex or Gauss-plane!

Actually i'm still hunting for this wo-man, who introduced this notation into math and physics, as s-he pested some deennia of my life.

• *Follow-Ups:*

- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker

• *References:*

- ◆ **resolve to perpendicular components, because they are independent**
◇ From: kenneth . bull
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: mmeron
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Timo Nieminen
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: FrediFizzx
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: FrediFizzx
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: FrediFizzx
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: FrediFizzx
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Hero . van . Jindelt
- ◆ **Re: resolve to perpendicular components, because they are independent**
◇ From: Ken S. Tucker

Re: resolve to perpendicular components, because they are independent

◆ **Re: resolve to perpendicular components, because they are independent**

◇ From: Hero . van . Jindelt

◆ **Re: resolve to perpendicular components, because they are independent**

◇ From: Ken S. Tucker

- Prev by Date: **dedanoe's universe**
- Next by Date: **Re: best angle to release the ball is 30 degrees?**
- Previous by thread: **Re: resolve to perpendicular components, because they are independent**
- Next by thread: **Re: resolve to perpendicular components, because they are independent**
- Index(es):
 - ◆ **Date**
 - ◆ **Thread**