



RELATIVITY CHALLENGE

VIDEO PRESENTATION

EPISODE 21

THE FAILURE OF EINSTEIN'S SPHERICAL WAVE PROOF

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Where Are We?

We have a lot of evidence that the Theory of Relativity is wrong.

1	Shown Objectively Better Equations	▶ Revised Equations Produces More Accurate Experimental Results. Michelson-Morley and Ives-Stillwell experiments
2	Corrected Conceptual Mistakes	▶ Wavelength is a Rate given in Length <u>Per Cycle</u> as units (e.g., Meters Per Cycle) not accounted for in Relativity
3	Explain Something That Has Not Been Explained Before	▶ Explain Einstein's Tau Function and give a specific meaning to $vx'/(c^2-v^2)$ ▶ Defines ξ as a Rate that is the Average of the Approaching and Receding Doppler Shifts.

Critical Question

If this is right, and there are mistakes in the Theory of Relativity, ***why does Einstein's Spherical Wave Proof work?***

The Spherical Wave Proof

We make the same mistake today, in 2010, that we have made for a century and this prevents us from seeing the problem with Einstein's proof.

We now have to prove that any ray of light, measured in the moving system, is propagated with the velocity c , if, as we have assumed, this is the case in the stationary system; for we have not as yet furnished the proof that the principle of the constancy of the velocity of light is compatible with the principle of relativity.

← **Claim**

At the time $t = \tau = 0$, when the origin of the co-ordinates is common to the two systems, let a spherical wave be emitted therefrom, and be propagated with the velocity c in system K . If (x, y, z) be a point just attained by this wave, then

$$x^2 + y^2 + z^2 = c^2 t^2.$$

← **Math Proof**

Transforming this equation with the aid of our equations of transformation we obtain after a simple calculation

$$\xi^2 + \eta^2 + \zeta^2 = c^2 \tau^2.$$

The wave under consideration is therefore no less a spherical wave with velocity of propagation c when viewed in the moving system. This shows that our two fundamental principles are compatible.

← **Conclusion**

Source: Einstein's 1905 Paper

What is a Sphere?

In order to understand Einstein's proof, we have to agree on the definition of a Sphere.

A Sphere is defined as the set of all points in three-dimensional Euclidean space that are located at a distance (the "radius") from a given point (the "center")

Source: Wolfram Research (makers of Mathematica)

3D Equation (Sphere)

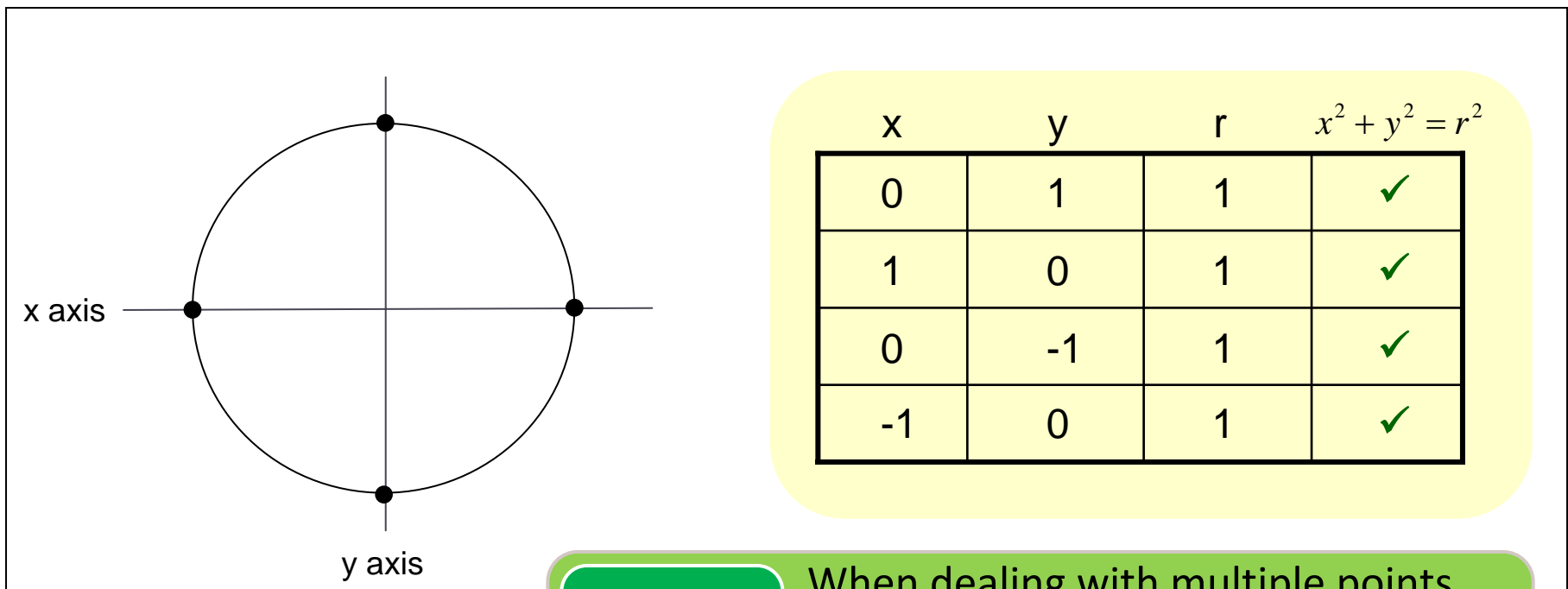
$$x^2 + y^2 + z^2 = r^2$$

2D Equation (Circle)

$$x^2 + y^2 = r^2$$

Mathematical Requirements

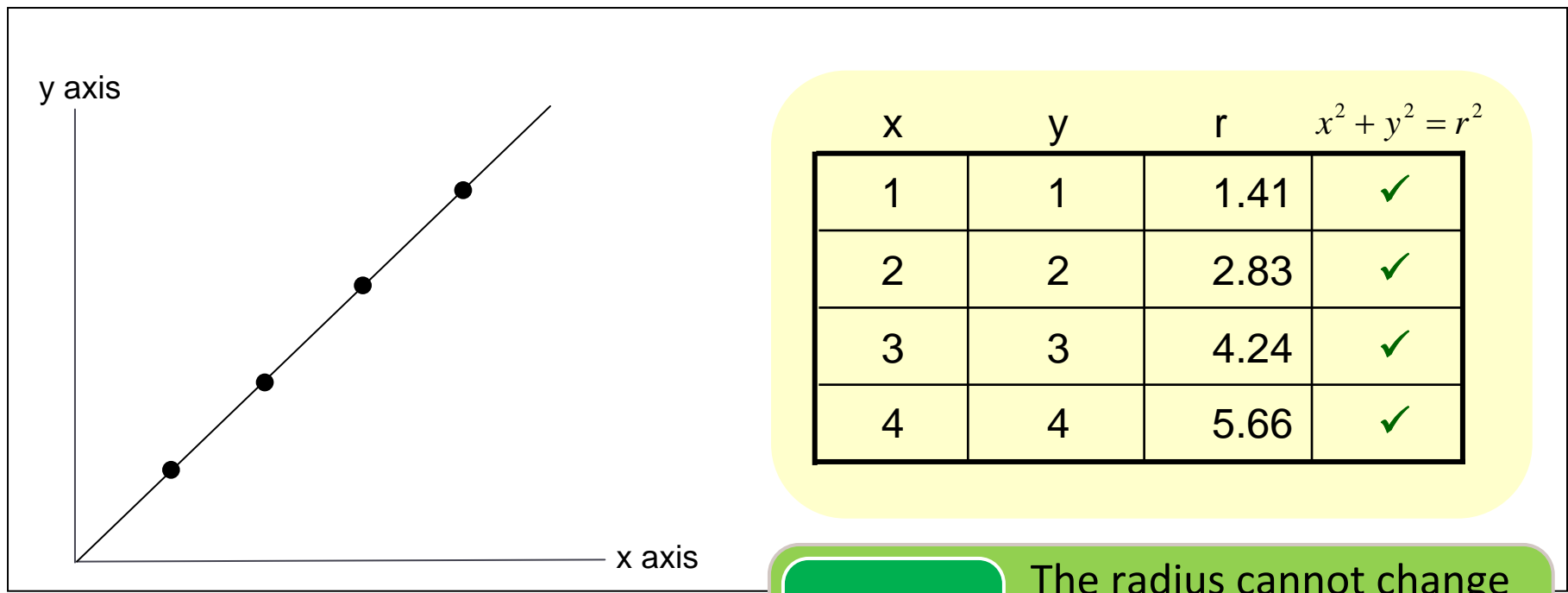
A Sphere (or Circle) requires that all of the points (x,y,r) adhere to the equation for a Sphere (or Circle).



Key Question When dealing with multiple points, is adherence to the equation enough to prove a Sphere (or Circle)?

Mathematical Requirements

A Sphere (or Circle) requires that all of the points (x,y,r) have the same radius.



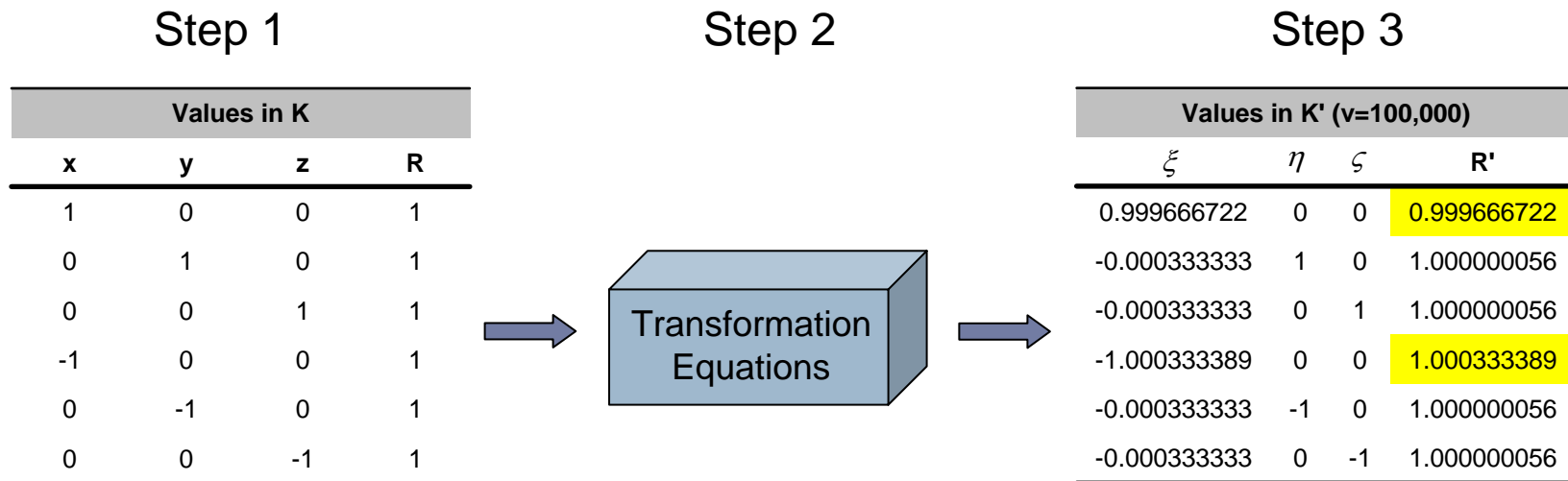
Key Finding The radius cannot change for points on the same Sphere (or Circle).

The Steps Behind The Proof

1	Find all of the points that satisfy the equation for a sphere
2	Use the transformation equations to produce all points for the second sphere
3	Confirm that all of the points, created in Step 2, are members of the same sphere; meaning they adhere to the equation <u>and</u> they all have the same radius

Reviewing Einstein's Proof

The Transformation equations do not produce a Sphere in the second system because the points do not all have the same radius.



- ✓ All Values Conform To $x^2 + y^2 + z^2 = c^2t^2$
- ✓ All Values Maintain Same Radius

- ✓ All Values Conform To $\xi^2 + \eta^2 + \zeta^2 = c^2\tau^2$
- ✗ All Values Maintain Same Radius

Key Finding

Not a Sphere because the transformed points do not all have the same radius.

The Spherical Wave Proof Fails

A Sphere cannot be associated with another Sphere using the Relativity Transformation Equations.

We now have to prove that any ray of light, measured in the moving system, is propagated with the velocity c , if, as we have assumed, this is the case in the stationary system; for we have not as yet furnished the proof that the principle of the constancy of the velocity of light is compatible with the principle of relativity.

At the time $t = \tau = 0$, when the origin of the co-ordinates is common to the two systems, let a spherical wave be emitted therefrom, and be propagated with the velocity c in system K . If (x, y, z) be a point just attained by this wave, then

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 Claim

 Math Proof (Incomplete)

 Satisfies Equations

 Keeps Same Radius

 Conclusion

Counter Arguments

The main counter-arguments ignore the need to mathematically establish a valid sphere for the transformed values.

1	Einstein's proof works because [<i>some aspect of Relativity</i>] is right.	▶ Logically, any argument that uses Relativity as a defense can only be rendered after the proof is complete.
2	Einstein's proof works when you take into account the observer's perspective.	▶ The mathematics associated with what an observer measures is given in Section 4 of Einstein's 1905 paper. Those equations suffer from the same radius problem as shown with the Spherical Wave Proof.
3	The equality of the two statements is all that is needed.	▶ This counter-argument ignores Einstein's purpose behind the proof, which is to associate two spheres with one another using the transformation equations.

Summary

Einstein's proof was incorrectly considered "right" because no one realized we needed to prove 2 things; adherence to the equations and an unchanging radius.

1	A Sphere requires that all of the points adhere to the equation of a Sphere
2	A Sphere requires that all of the points have the same radius as the other points
3	The transformed points do not form a Sphere because they do not all have the same radius

Key
Finding

There is no Theory of Relativity without the Spherical Wave Proof.



Thank You

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