

PHY100S – The Magic of Physics – Pre-Class Quiz #5

For everyday speeds, such as those of cars or airplanes, the relative velocities measured by two observers that is predicted by Galileo's theory of relativity is:

1. Greater than the speed of light.
2. A consequence of the nature of absolute space and time, as explained by Newton.
3. Almost exactly the same as the relative velocities predicted by Einstein's theory of relativity. **CORRECT**
4. Due to the gravitational interaction between the observers and the object whose velocity is being measured.

When he was 16 in 1895 Einstein asked himself what he would see if he pursued a beam of light at the beam of light. The answer to this question according his 1905 Special Theory of Relativity is that he:

1. Would see a stationary beam of light
2. Would see a beam of light receding away from him at the speed of light.
3. Would see a beam of light receding away from him at a very small speed.
4. Can not pursue a beam of light at the speed of light. **CORRECT**

In a sealed room, according to the Principle of General Relativity an experiment to determine whether the room is accelerating in the absence of gravity or is instead at rest in the presence of gravity:

1. Requires speeds greater than the speed of light.
2. Necessarily involves an ultra-sensitive apparatus.
3. Proves that space is curved.
4. Is impossible. **CORRECT**