Quiz 1

1. A spaceship is travelling towards a star at 100,000m/s. In the reference frame inside the spaceship, the speed of the light rays from the star to the spaceship would be closest to… [radio] A *299,892,458 m/s* ***B 299,792,458 m/s*** *C 299,692,458 m/s D 299,992,458 m/s*
2. A person running away from a light bulb and a person running towards a light bulb would measure the speed of the emitted light to be… [radio] **A the same** B different
3. If a person is accelerating in their car, can they use the theory of special relativity to measure space-time? [radio] **A Yes** B No
4. True or false: the speed of a spaceship is the same in all reference frames? [radio] A True **B False**
5. Space-time permeates how many dimensions? [text box] **ANS=4**

Quiz 2

1. True or false: the light beam travelled a larger distance in the reference frame outside of the train than in the reference frame inside the train. [radio] **A True** B False
2. In which reference frame did time flow slower throughout the journey of the light beam? [radio] **A inside the train** B outside the train
3. If time flows slower in observer X’s frame of reference compared to observer Y, would X age faster or slower than Y? [radio] **A slower** B faster
4. Considering γ >= 1, is the proper time interval always the smallest time interval that can be observed between two events? [radio] **A Yes** B No
5. If we performed this train experiment and measured time passing on extremely precise instruments, would we really observe time passing at difference rates depending on relative speeds? [radio] **A Yes, this would really happen** B No, this is only theoretical

Quiz

1. For v=0.866c, what is the value of the Lorentz factor as an integer? [text box] **ANS=2**
2. During the journey from Earth to the planet, in which reference frame is the proper time interval observed? [radio] **A in the spaceship** B on Earth
3. During the journey from the planet back to Earth, which twin observes proper time? [radio] **A in the spaceship** B on Earth
4. If the journey from Earth to the planet takes 10 years for the twin inside the spaceship, how many years will it take for the twin on Earth? [text box] **ANS=20**
5. When reunited, how much older will the twin on Earth be compared to the twin who travelled through space? [text box] **ANS=20**