

Exercise 1

Friday, November 13, 2020 8:23 PM

1.

She is moving together with the spaceships at the constant velocity. This means that the length from spaceship one and the length to the spaceship 2 are the same. If those spaceships shoot their lasers at the same time in their reference frame, then the laser (we assume they travel at the speed of light) will have to travel the same distance to her, with the same velocity, this means that those lasers will pass her at the exact same time.

2.

- Observer M sees lasers crossing just at her position
- Observer M is in the middle of those spaceships
- Laser beams were emitted simultaneously in spaceship frame.

We now assume that everything is onedimensional, meaning everything is happening in x-axis. From the planets reference frame, when two spaceships shoot their lasers at time 0, the observer M has moved a bit closer to the left, meaning that the observer M meets the laser from the right before the laser from the left.

Men wtf, planetobservatør ser fortsatt at begge skjøt laserne samtydig. Eneste er at planet observatør ser at event A og B skjedde ikke samtydig for observatør M.

3.

In order for the laser beams to cross exactly at the position of the observer M, the left laser spaceship must shoot their laser first. Just as explained in \ref{2}, observer M moves towards the right light beam, therefore it meets it before if spaceships shoot their gun simultaneously at their reference frame (lol simus-what?). The leftmost spaceship must therefore shoot their laser before spaceship 2!

4.

Yes, the same principles applies here as we explained in \ref{1}.

5.

The first thing that comes in my mind is that the left spaceship explodes first in planets reference frame. Because the left spaceship travels towards the laser beam, while the right spaceship travels away from the laser beam.

However, we must take into account that the speed light is constant! Thats it, thats how far i came :/

6.

The chronological order must be
B - A - C - D
Hmm, surely wrong