

Source:

To test his prized cows' intelligence, Farmer John has trapped Bessie and Elsie in an escape room!

The escape room is a long tunnel in which the cows are traveling—Bessie at $-0.4c$ and Elsie at $0.6c$. At the start of the puzzle, both cows are at position zero in the tunnel where Farmer John is observing. To escape, Bessie has to turn on a light so Elsie sees it exactly five seconds after the challenge begins. Then, Farmer John will be satisfied that his cows are properly educated.

1. How long should Bessie wait before turning on the light?
2. Where is Bessie when Farmer John sees her turn on the light?