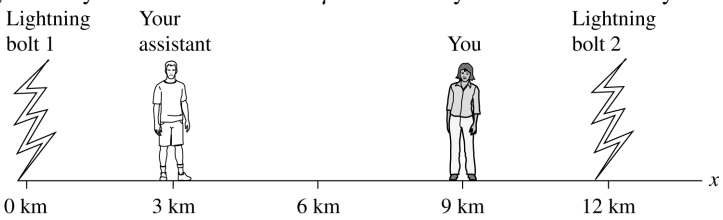
36.13. **Model:** You and your assistant are in the same reference frame. Light from the two lightning bolts travels toward you and your assistant at 300 m/μs. You and your assistant have synchronized clocks.

Visualize:



Solve: Bolt 1 hits 9 km away, so the light takes 30 μs to reach you (9000 m ÷ 300 m/μs). You see this flash at t = 50 μs, so the lightning hit at t_1 = 20 μs. Light from bolt 2, which hits 3 km away, takes 10 μs to reach you. You see it at 10 μs, so the lightning hit at t_2 = 0 μs. The strikes are not simultaneous. Bolt 2 hits first, 20 μs before bolt 1. Your assistance is in your inertial reference frame, so your assistant agrees that bolt 2 hits first, 20 μs before bolt 1.

Assess: A simple calculation would show that your assistant *sees* the flashes at the same time. When the flashes are seen is not the same as when the events happened.