Chapter R2: Synchronizing Clocks

R2.2 The Problem of Electromagnetic Waves

See summary on p.29.

R2.3 Relativistic Clock Synchronization

This is very important to understand. The key thing is that we need to think of synchronization as requiring a careful operational definition. Synchronization isn't obvious enough that we can take it for granted.

R2.4: The SR System of Units

Example: Let's use the 55 mile per hour speed limit to define yet another system of units:

1. In these units, how far is it to Ellsworth?

2. Suppose a car is traveling at 35 miles per hour. What is its speed in these units?

3. Using 55 mi/hr instead of c, reformulate the the statement of how clocks are synchronized. Give a procedure that you could use to test to see if two clocks are synchronized.

R2.5 & 2.6 Spacetime Diagrams:

These aren't as confusing as they may seem. With a little practice these will make sense.

Practice:

1. Convert the following to SR units:
   (a) 40,000 km (Circumference of the earth.)
   (b) 2 hours
   (c) 343 m/s (Speed of sound in air.)
2. You fly to Pluto from earth in a spaceship one third the speed of light. Pluto is 5.2 hours from earth. You then have a two hour picnic on Pluto and return home to earth, again traveling at half the speed of light. Make a spacetime diagram of this journey.