This third problem set is on special relativity and the initial stages of the calculus of spacetime geometry.

**Reading:**
Schutz Chapter 2

**Problems:**
All numbered problems are from Schutz.

1. A steel cable connects two trains at rest on the same track. The cable will snap if it is stretched by as much as 1%. The trains accelerate in such a way as their velocities, as measured in the ground frame, are always equal. Eventually the cable snaps. Explain why this happens. How fast are the trains moving when the cable snaps?

2. 2.12 Practice with Lorentz transformations

3. 2.19 Uniform acceleration and a trip to the center of our galaxy

4. 2.20 Coordinates to 4-velocity and 4-acceleration

5. 2.21 More acceleration - to be used later