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Nota di contenuto	Pt. I. Kinematics: relativity without any equations -- 1. Welcome to the world of relativity -- 2. Basics -- Questions about motion -- Frames of reference -- Relativity of motion -- The Law of Inertia -- Inertial and non-inertial frames -- What's so "special" about Special Relativity? -- 3. Galilean relativity -- Basic questions -- Spacetime diagrams -- The Galilei transformation -- Addition of velocities -- Acceleration and Newton's Second Law -- 4. Einsteinian relativity -- The mystery of the speed of light -- Modification to the spacetime diagram -- The problem -- The solution -- Einstein's argument -- The solution, continued -- Conservation of spacetime volume -- The Lorentz transformation -- The low velocity limit of the Lorentz transformation -- Addition of velocities -- Dependence of inertia on speed -- 5. Causality -- Before and after -- Paradox? -- Instantaneous communication? -- Impossibility of faster than light travel -- The light-cone -- 6. Consequences -- Synchronization of clocks -- Time dilation -- What time dilation DOES NOT mean -- Lorentz contraction -- What Lorentz contraction DOES NOT mean -- Twin paradox -- Doppler effect -- Red shift -- Blue shift -- Red shift and the expansion of the universe -- Pt. II. Problems -- 8. Qualitative problems -- Reading the spacetime diagram -- Street lamps -- Supernovae -- Questions on before and after -- The hare and the tortoise 1, 2, 3 -- The starship and the supernova -- Relativistic sports -- Tagging up in baseball 1, 2 -- The offside rule in soccer -- Lorentz contraction -- Train and tunnel -- The starship and the enemy space cruiser 1, 2 -- The duel of the space

cruisers -- Trains in a tunnel -- 9. Quantitative problems -- Addition of velocities --
Pt. III. Dynamics: relativity with a few equations -- 10. The world's most famous equation -- 11. The problem -- 12. Newtonian dynamics -- The mass-momentum vector -- The impulse vector -- Inertial mass -- Newton's Second Law -- Newton's Third Law and the conservation of mass-momentum -- 13. Relativistic dynamics -- The energy-momentum vector -- The energy-momentum vector of a photon -- The work-impulse vector -- Conservation of energy-momentum -- $E=mc^2$ -- Common misconception about $E=mc^2$ -- 14. Summary of Pt. III.

Sommario/riassunto

Presents a step-by-step explanation of Einstein's Special Theory of Relativity through a series of diagrams rather than equations
