

Things to know for the Final
(In addition to previous such lists)

- 1) Constancy of the speed of light
- 2) Speed of light as maximum speed
- 3) Length contraction
- 4) Time dilation
- 5) Mass increase
- 6) Equivalence principle
- 7) Spacetime diagrams
- 8) Gravity as warped spacetime
- 9) Gravitational redshift/time dilation
- 10) Gravitational lensing
- 11) Black holes
- 12) Schwarzschild radius/event horizon and tidal forces
- 13) Globular cluster distances and position/motion of the Sun in galaxy
- 14) 21 cm radiation from HI/neutral hydrogen
- 15) Radiation from HII/ionized hydrogen
- 16) HI rotation curves of galaxies and dark matter
- 17) Parts of a spiral galaxy: nuclear bulge, disk and halo
- 18) Gas/star/gas cycle
- 19) Spiral density wave theory and star formation
- 20) Galaxy interactions and evidence that the Milky Way has suffered past collisions
- 21) Supermassive central black hole in Milky Way
- 22) The Local Group
- 23) Olber's paradox
- 24) Distances to galaxies: Cepheids, Tully-Fisher and supernovae type Ia, redshifts
- 25) Hubble's Law and the expansion of the Universe
- 26) Cosmic microwave background radiation
- 27) Accelerating expansion of the Universe and dark energy
- 28) Inflation: the flatness problem and the horizon problem
- 29) Nucleosynthesis during Big Bang