

Black Holes, Problem Set 13 for Thursday, Nov. 21

Reading from *Exploring Black Holes*

Study Chapter 3 through Section 3-6 (through p. 3-18).

Presentations

We need two groups of two presenters from among those that didn't present the last two times, so that would be Jeremy, Kel, Rania, and Sasha.

The two topics I can imagine being good to present are Sample Problem 2 (p. 3-22) and Sample Problem 3 (p. 3-25).

In Sample Problem 2, get rid of the standalone infinitesimals $d\tau$ and dr in Eqn. 33. Use $\Delta\tau$ and Δr instead.

In Sample Problem 3, get rid of the standalone infinitesimals dt , $d\tau$, and dr in Eqn. 39. Use Δt , $\Delta\tau$, and Δr instead. Also in Eqn. 39, put the parenthesis in the necessary places.

I am aware that both of the sample problems are beyond p. 3-18, but enough theory is already developed by p. 3-18 to understand and present them.

For Problem Set 13

Problem 1 — EBH Problem 1, Plunging at Rest from Infinity, p. 3-28

Problem 2 — EBH Problem 2, Maximum Bookkeeper Speed, p. 3-28

Tackle the optional part only if you are feeling under-challenged.

Problem 3 — EBH Problem 3, Hitting a Neutron Star, p. 3-28