ASTR 531 - Stellar Interiors and Evolution

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[**Exam format**]
This exam is open note but closed book/internet. You have access to a list of constants and maybe use a tool for converting units (e.g. an iPython instance with astropy installed).

Binary Limbo: How low can you(r separation) go?!

For each type of mass transfer listed below state whether there is a minimum separation that a binary can achieve during mass transfer.
If you answer yes

- *Explain what physically occurs in the system when it reaches this minimum separation*
- *Find an expression for the minimum separation in terms of the initial separation and initial mass ratio $q = M_{2,i}/M_{1,i}$ (assuming that the rate of mass transfer is constant)*

If you answer no

- *Explain why a minimum separation does not exist*

Part a - Conservative and Stable Mass Transfer

Part b - Unstable Mass Transfer
