

ASTR 680 Practice questions for lecture 11: Evidence for BH

1. Suppose that a star of mass m donates mass to a black hole of mass M , in a way such that (a) the mass of the system is conserved (none escapes), and (b) the angular momentum of the system is conserved. Suppose that the orbit is and remains circular. What happens to the orbital separation if $m > M$? What happens if $m < M$? What does this imply about the stability of mass transfer in the two cases?