

## AST 250 – Spring 2018

### Homework Due: Friday February 16

14. (a) The H-R diagram is usually plotted in logarithmic coordinates because the luminosity and temperature span such a wide range of values. Mathematically derive the slope of a line of constant radius in a log L vs. log T H-R diagram. Check your answer by measuring the slope of a line of constant radius in the H-R diagram below.

(b) If you observe a red supergiant and a red dwarf with the same effective temperature, but the red supergiant has  $M_V = -6$  and the red dwarf has  $M_V = +14$ , what is the ratio of their radii (quote giant/dwarf)?

