Hand in your solutions by 7pm on Friday, October 12. You should put them in the lower box outside my office.

**Here are a few guidelines for this – and every – homework assignment:**

Use a *symbolic* approach (often aided by sketches and careful definition of variables) – using variables to denote relevant quantities and then, only at the end, when you’ve derived an expression that solves the problem at hand, plug in numbers.

Use units; don’t go crazy with significant figures. Remember – you can never justify more significant figures in your answer than the *least* significant of the inputs to the problem.

Please show your work, write neatly – be organized. Explain what you are doing. Use sketches when you think they’d be helpful.

For full credit, you must show a reasonable amount of work and explain what you’re doing.

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**Problem 1**

Ryden & Peterson problem 13.2 (p. 334), but *only* part (b).

**Problem 2**

Ryden & Peterson problem 13.4 (p. 334).

**Problem 3**

Ryden & Peterson problem 13.6 (p. 335).

**Problem 4**

Ryden & Peterson problem 13.7 (p. 335).

If the orbital inclination were actually 45 degrees, then what would the orbital speeds of the two stars actually be (assume that their orbits are circular)? And what would their masses be? And would our estimate of the semi-major axis of the orbit be bigger or smaller if it turned out that the orbital inclination were 45 degrees instead of 90 degrees (but all the other information provided in the problem were still the same)? Note that there are three separate questions in this part of the problem.
Problem 5

Ryden & Peterson problem 13.8 (p. 335).

Problem 6

Ryden & Peterson problem 13.9 (p. 335). Hint: cast the flux ratio for “percent change” as \( \frac{F_1}{F_2} = \frac{F_2 + \Delta F}{F_2} \). If you need an approximation for \( \log(1 + x) \) consider the one you know: \( e^x \approx 1 + x \), and take the natural logarithm of both sides. Finally, if you need to go from an expression in terms of a natural log, \( \ln \), to one in terms of standard log, \( \log_{10} \), you’ll need to use the change of base formula.

Problem 7

Ryden & Peterson problem 13.10 (p. 335).

Problem 8

Ryden & Peterson problem 13.11 (p. 335). Hint: treat the faces of each star as circles, and ask yourself what areas are blocked in each eclipse.