

Physics 1090 Homework #3

Due Thursday, September 17, 2:00 pm

Reading assignment: Chapters 7, 8, 9 of [the notes](#).

1. On September 21, day and night will have equal length in Charlottesville. Where else on earth will that be true on that day? Explain. Where on earth will the sun be directly overhead at midday on that day?
2. You are in a garden somewhere on earth and you come across a sundial. Can you tell by looking at the sundial which hemisphere you are in?
3. The moon goes round the earth once a month. Explain briefly why we don't see an eclipse of the sun every month.
4. Go to the solar system simulator at <http://space.jpl.nasa.gov/> ***Click the option to have the image take up 30% of the width.***

Look at: Mars as seen from Earth, Earth as seen from Mars, Jupiter as seen from Earth, Earth as seen from Jupiter. Draw three concentric circles approximately representing Earth, Mars and Jupiter. Figure out, from the shadowing you see on the views you looked at, where the three planets must be in their orbits relative to each other, and indicate the positions, approximately, on your orbit diagram.