

Homework #2

(Due Monday, January 18th)

Please write up your answers neatly on another sheet of paper. Show all of your work since I care more about your process than whether you got the right number or not. Similarly, if you don't understand what I'm asking, think about it. If it's still really unclear please ask me asap or go ahead and answer as best you can and explain what you thought I meant.

You are welcome to work in groups, but each individual must write up their own solutions. Do not copy! If you can't write it up under your own power, chances are you don't quite understand it yet – so please have the courage to admit that and ask your group to go over it again.

The View from Pandora

Imagine you just landed on the surface of a terrestrial planet named Pandora. Looking up you see a giant planet reminiscent of Jupiter hanging silently in the sky. You know that Jupiter has a physical size of about 140,000 km across. By measuring with your fist at arms length you see that the angular size of Pandora's giant planet (we'll call it "Zeus" – Jupiter's Greek counterpart) is about four fists across.

- a. What is the angular size of the planet ("Zeus") in Pandora's sky? (in degrees)
- b. What is the physical distance from Pandora to the planet Zeus? (in km)

In our solar system if we were to stand on Jupiter's moon Io, Jupiter would be about two fists across (in angular size).

- c. Is Io **closer** or **further** from Jupiter than Pandora is from Zeus?
- d. Without calculating anything tell me *how many times* closer/farther apart is Io-Jupiter compared to the Pandora-Zeus distance.