

Homework #2
AS101 Summer 2006
Dr. Withers

GRADE SHEET

Assigned: 2006.05.19
Due: 2006.05.22, start of class

1) Read Chapter 2

2) Nights in Boston are longer (15 hours) in December than June (9 hours). If Earth's axis had no tilt, would this change? If so, how?

Nights in December and June would both be 12 hours long 25 points
Nights in December and June would be the same length 20 points
Nights in December would be shorter, nights in June would be longer 10 points
Anything else 0 points

3) When it is summer in Australia, what season is it in the USA?

Winter 25 points
Anything else 0 points

4) If a spacecraft travels at 5×10^4 metres per second for 2×10^6 seconds, how far has it travelled?

10^{11} metres (or correct number of km, cm, etc) 25 points
 10×10^{10} metres 20 points
 10^{11} or 10×10^{10} with incorrect or missing units 10 points
Any number of metres or other measure of length 5 points
Anything else 0 points

5) Suppose you live on the Moon near the middle of the face that looks towards Earth. What phase of Earth do you see when people on Earth see a New Moon? Draw a labelled diagram to explain your answer that shows where you are, which parts of Earth and the Moon are sunlit, and which parts are not sunlit.

Points for words (maximum of 10 points)
Full Earth 10 points
I see the side of Earth that is lit up by the Sun 5 points
Any other phase 0 points

Points for diagram (maximum of 15 points if all three things below are done)
Moon between Earth and the Sun, with all three objects labelled 5 points
Sunlit sides of both Earth and Moon shown correctly for the student's diagram 5 pts
Position of observer shown on the side of the Moon that faces Earth 5 points