

Introduction to Astronomy

HW071210

due in one week

1. The human population on Earth is currently doubling about every 30 years. Describe how the human civilization affects the biosphere in terms of deforestation, depletion of the ozone layer, and global warming and climate change. It has been suggested that the overpopulation on Earth could be solved by colonizing the Moon or Mars. Do you think this is a reasonable solution? Explain your answer.
2. Some people who supported the fission theory proposed that the Pacific Ocean basin is the scar left when the Moon pulled away from the Earth. Explain why this idea is probably wrong.
3. Suppose you have a telescope with an angular resolution of 1 arcsec. What is the size, in kilometers, of the smallest feature you could have seen on the Martian surface during the opposition of 2005, when Mars was 0.464 AU from Earth? What if you have access to the Hubble Space Telescope, which has an angular resolution of 0.1 arcsec?