

Introduction to Astronomy [普通天文學]

HW061002

due in one week

1. Find out what the Alexandrian Library was. Around 200 BC, its librarian and director Eratosthenes devised a way to measure the circumference of the earth, to an admirable accuracy. Describe his method.
2. Our textbook has a special section called “*What If ...*”. Such a hypothetical question usually is very inspiring because we must understand something thoroughly enough in order to consider what if things could have been different otherwise. In such a What-If column in page 35, one is faced with a question what it is like if the Earth were tilted in such a way that its rotation axis lied in the orbital plane, as shown below. In fact Uranus has a rotation just like this. Describe what kind of differences it would make (for our life, for what we observe) if that were the case for Earth. State your reasoning.



Unnumbered Figure pg 35
Discovering the Universe, Seventh Edition
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3. What is the difference between the umbra and the penumbra of a shadow? What is a penumbral eclipse of the Moon?
4. Photocopy a flight route map from Taipei to New York from an airline company website. Confirm that the route is close to a great circle.
5. How many more sidereal months than synodic months are there in a year? Explain the reason.