

29:52 Exploration of the Solar System

Homework Assignment # 10

Quiz must be completed on ICON by 8 AM, Monday, April 19

1. Which of the following properties of Pluto demonstrates that it is not a major planet? Pick the best one.
 - (a) semimajor axis
 - (b) eccentricity
 - (c) surface temperature
 - (d) mass
 - (e) chemical composition
2. The semimajor axis of the the orbit of Pluto is 39.5 au, while that of Neptune is 30.1 au. How is it possible that Pluto comes nearer to the Sun than Neptune?
 - (a) its eccentricity is 0.25
 - (b) the semimajor axis changes with time; it comes closer when the semimajor axis is smaller
 - (c) the orbit of Pluto is highly inclined with respect to the ecliptic
 - (d) the semimajor axis of a Kuiper Belt object has a different significance than that of a major planet
 - (e) Neptune shows large excursions outside of its elliptical orbit
3. Pluto is a member of one of the following categories of astronomical object. Which is it?
 - (a) major planet
 - (b) dwarf planet
 - (c) satellite
 - (d) Oort Cloud object
 - (e) HII region
4. The spacecraft *New Horizons* will encounter Pluto in July, 2015. What will its average speed be for the remainder of its voyage? **Hint:** you will have to find some supplementary information (i.e. outside the textbook) on this one.
 - (a) 25 au/year
 - (b) 300,000 km/sec
 - (c) 30 km/sec
 - (d) 0.25 au/year
 - (e) 3 au/year
5. Is the so-called β (Beta) ring of Uranus inside the Roche Distance for that planet? To answer this, use Figure 13.12 of the textbook. Be sure you under-

