

ANSWER ALL THE QUESTIONS. THE WORTH OF EACH QUESTION IS IN () AFTER THE QUESTION.

1. [6] Fill in the following for one terrestrial type planet (excluding the earth) and for one giant type planet:

	NAME	DISTANCE from SUN	SIDEREAL ORBITAL PERIOD	SYNODIC ORBITAL PERIOD
terrestrial:	-----	-----	-----	-----
giant:	_____	_____	_____	_____
	_____	_____	_____	_____

2. [6] Fill in the following for the same two planets as above:

(name)	DIAMETER (in terms of earth's)	PERIOD OF ROTATION (around axis)	TILT OF AXIS
-----	-----	-----	-----
_____	_____	_____	_____
_____	_____	_____	_____

3. For each of the two planets used above, give a brief description of any special features including major satellites and/or rings:

Terrestrial [4]

Giant [4]

4. [8] List the **planets** in order of increasing distance from the sun (i.e., start with the closest planet and end with the farthest planet based on average distance) and give the approximate **distance in A.U.** from the sun for each of the planets.

	<u>NAME</u>	<u>DISTANCE</u>		<u>NAME</u>	<u>DISTANCE</u>
1.(nearest):	<u>Mercury</u>	<u>1/3 AU</u>	6.	<u>Saturn</u>	<u>10 AU</u>
2.	<u>Venus</u>	<u>3/4 AU</u>	7.	<u>Uranus</u>	<u>20 AU</u>
3.	<u>Earth</u>	<u>1 AU</u>	8.	<u>Neptune</u>	<u>30 AU</u>
4.	<u>Mars</u>	<u>1.5 AU</u>	(9.	<u>Pluto</u>	<u>30 – 50 AU</u>
5.	<u>Jupiter</u>	<u>5 AU</u>			

5. For each of the following major moons, list the planet it orbits:

Callisto	[1] <u>Jupiter</u>	Are the larger asteroids [much smaller than, about the same size as, or much larger than] these major moons?
Triton	[1] <u>Neptune</u>	
Ganymede	[1] <u>Jupiter</u>	[2] <u>much smaller than</u>
Europa	[1] <u>Jupiter</u>	Is the Earth's moon [much smaller than, about the same size as, or much larger than] these major moons?
Titan	[1] <u>Saturn</u>	
Io	[1] <u>Jupiter</u>	[2] <u>about the same size</u>

6. [6] Draw a diagram (similar to the one drawn in class) showing where and how we on the earth see an **inferior planet**. Label on the diagram the four major positions of the planet. Indicate on the diagram when the planet is seen as a “morning star” and when as an “evening star”.

7. [3] Is the tilt of the earth or is the elliptical nature of the earth's orbit the major cause of the seasons?

tilt of the earth.

[4] Give evidence to support your answer.

8. For all three parts, answer in the same units for easy comparison

[3] What is the diameter of the earth? (You may substitute the circumference of the earth here but if you do, indicate this.)

8,000 miles.

[3] What is the distance from the earth to the moon?

250,000 miles.

[3] What is the distance from the earth to the sun?

93,000,000 miles.

9. Tell when the moon rises when it is at the following four phases:

[2] a) first quarter: noon

[2] b) third quarter: midnight

[2] c) full moon: sunset

[2] d) new moon: sunrise

[1] e) Which half of the visible moon is bright during the first quarter phase at the time of day (or night) when the moon is high in the sky: North, South, East, or West? [Hint: consider in which direction the sun is at this time of day (or night).]

West

10. [10] Briefly discuss the conditions necessary to have a **total solar eclipse**.

11. [3] a) Explain why we have **leap years**.

[3] b) Do we have leap years EVERY four years, or are there any exceptions? (If there are exceptions, explain why!)

12. [3] What is a **meteoroid**?

[3] What is a **meteorite**?

13. TRUE or FALSE (for each: +1 if correct, 0 if blank, -1 if wrong)  
(or subtracting from 100: -0 if correct, -1 if blank, -2 if wrong)  
(To be true, all parts must be true including any statement and any cause)

  I   a) Summer is longer than winter in the Northern hemisphere but not the Southern.

  I   b) A “day” on the moon is the same as a month on the earth – 29.5 earth days.

  I   c) High tides are a little over 12 hours apart.

  I   d) Total solar eclipses happen only when the moon is near perigee.

  F   e) As viewed from the moon, **the earth would move rise and set** just as the moon does when viewed from the earth.

  F   f) As viewed from above the North Pole, **most but not** all of the planets orbit around the sun counterclockwise.

  F   g) Venus and **Mars** do not have moons.

  I   h) A comet has a nucleus on the order of several kilometers but its tail stretches up to 1 A.U.

  F   i) Comets, like the planets, sun, and moon, **are always** found near the ecliptic.

  I   j) The largest asteroid is Ceres (actually a dwarf planet) and it is smaller than our moon.