Review Unit 2 - Sun, Earth, Moon

Name: _____ **Date:** _____

1. The length of an Earth year is based on Earth's

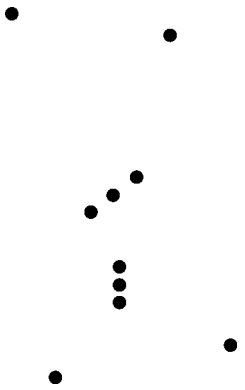
   A. rotation of 15°/hr

   B. revolution of 15°/hr

   C. rotation of approximately 1°/day

   D. revolution of approximately 1°/day

2. The accompanying diagram represents the major stars of the constellation Orion, as viewed by an observer in New York State.



   Which statement best explains why Orion can be observed from New York State on December 21 but not on June 21?

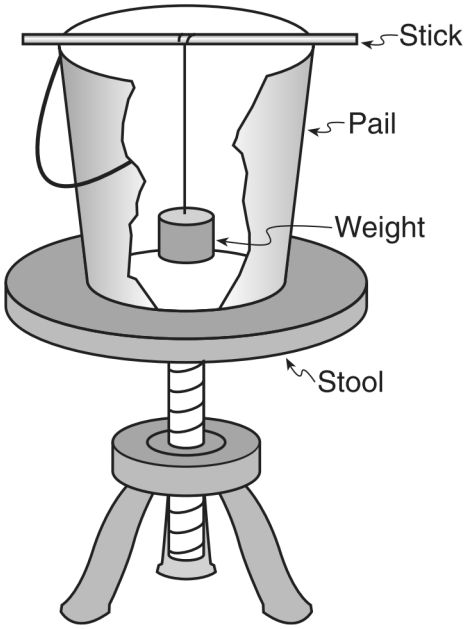
   A. Orion has an eccentric orbit around Earth.

   B. Orion has an eccentric orbit around the Sun.

   C. Earth revolves around the Sun.

   D. Earth rotates on its axis.

3. The diagram below shows the equipment used to demonstrate a Foucault pendulum. In the demonstration, a student swings the weight hanging in the pail and then spins the stool. The stool represents



   A. the revolving Earth B. the rotating Earth

   C. the Coriolis effect D. convection currents

4. The Coriolis effect causes winds in New York State to generally curve

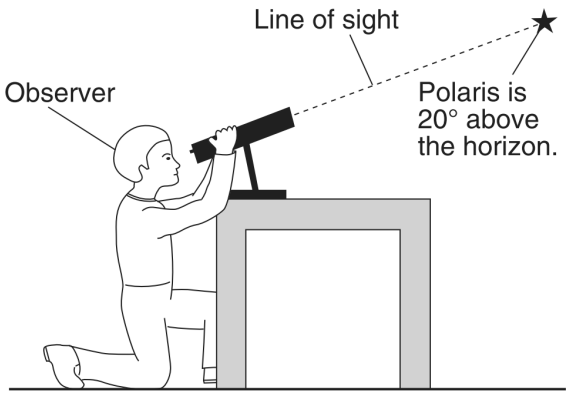
   A. to the right of the direction of travel

   B. to the left of the direction of travel

   C. upward away from Earth's surface

   D. downward toward Earth's surface

5. The diagram below shows an observer measuring the altitude of *Polaris*.

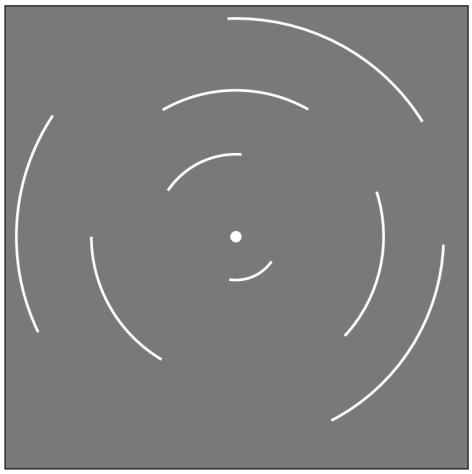


(Not drawn to scale)

What is the latitude of the observer?

A. 20°N B. 20°S C. 70°N D. 70°S

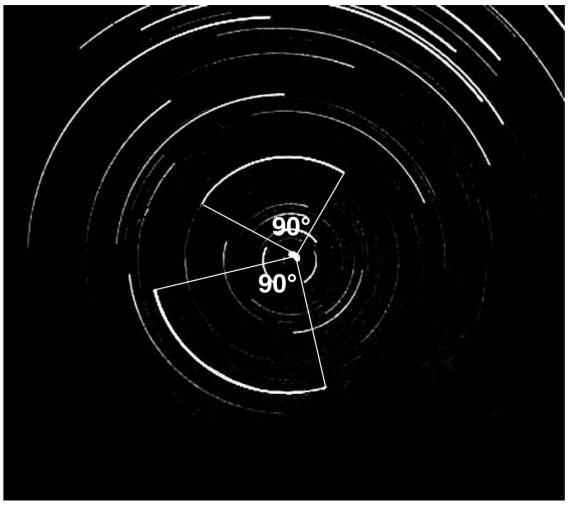
6. At a location in the Northern Hemisphere, a camera was placed outside at night with the lens pointing straight up. The shutter was left open for four hours, resulting in the star trails shown below.



At which latitude were these star trails observed?

A. 1°N B. 30°N C. 60°N D. 90°N

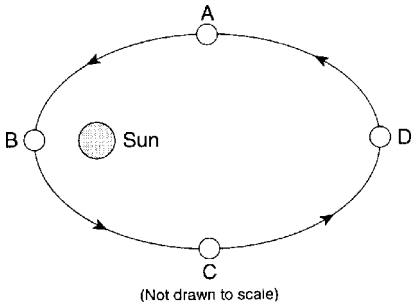
7. A camera was placed in an open field and pointed toward the northern sky. The lens of the camera was left open for a certain amount of time. The result is shown in the photograph below. The angle of the arc through which two of the stars appeared to move during this time exposure is shown.



How many hours was the lens left open to produce the photograph?

A. 12 B. 2 C. 6 D. 4

8. The diagram below shows four positions of a planet in its orbit around the Sun.



(Not drawn to scale)

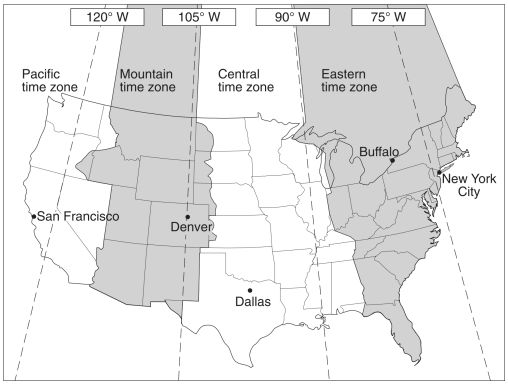
At which position is the planet's orbital speed greatest?

A. *A* B. *B* C. *C* D. *D*

9. Base your answer(s) to the following question(s) on the passage and time zones map shown below.

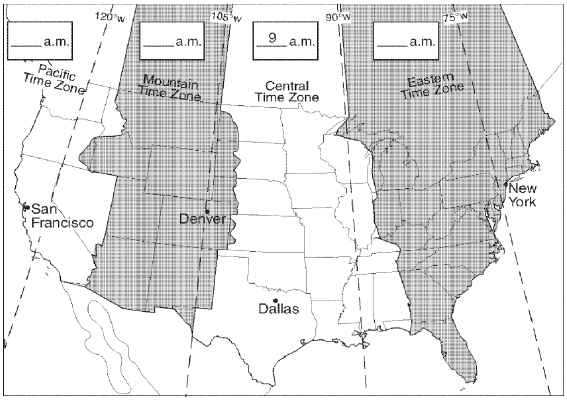
Time Zones

In 1883, Earth was divided into 24 time zones. The United States (excluding Alaska and Hawaii) has four time zones, which are indicated by different shadings on the map. Each zone is roughly centered on lines of longitude that are 15° apart. These lines are shown as dashed lines on the map. Most locations within a time zone have the same time. This time is called standard time. As you move to the west, the time in each zone is one hour earlier than the previous time zone.

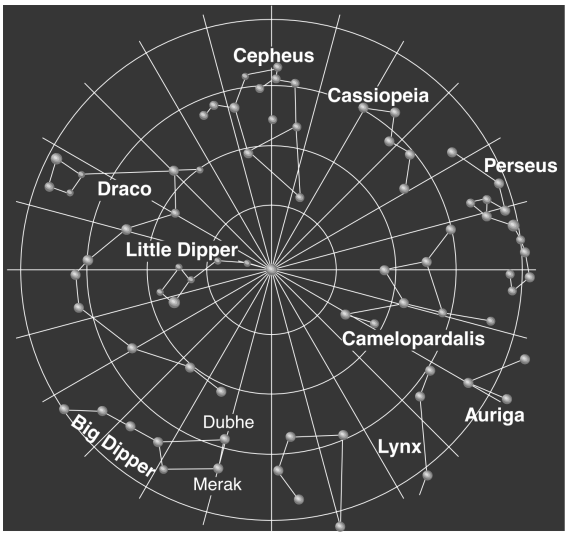


Explain, in terms of Earth's rotation, why the time zones are 15° of longitude apart.

10. On the United States time zone map below, indicate the standard time in *each* time zone when it is 9 am in the Central Time Zone. The dashed lines represent the standard-time meridians for each time zone. Be sure to indicate the time for all *three* zones.



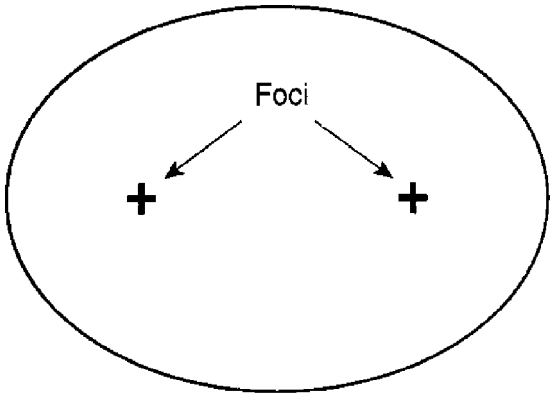
11. Base your answer(s) to the following question(s) on the star chart below, which shows the locations of several constellations visible in the night sky. These constellations appear to move counterclockwise around the star in the center of the chart. Straight lines are at 15-degree intervals. *Merak* and *Dubhe* are two stars in the Big Dipper.



(Not drawn to scale)

Identify the star located in the center of this star chart.

12. The diagram below represents the elliptical orbit of a spacecraft around the Sun.



(Drawn to scale)

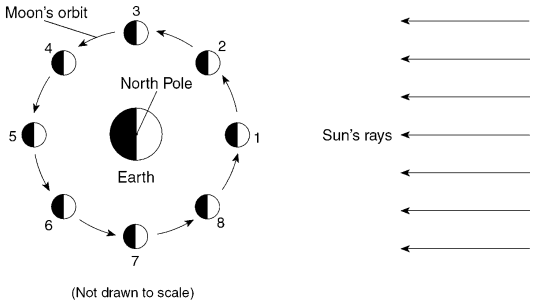
In the space below, calculate the eccentricity of the spacecraft's orbit following the directions below:

a) Write the equation for eccentricity.

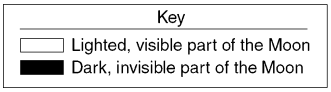
b) Substitute measurements of the diagram into the equation.

c) Calculate the eccentricity and record your answer in decimal form.

13. Base your answer(s) to the following question(s) on the diagram below, which represents the Moon orbiting Earth as viewed from space above the North Pole. The Moon is shown at eight different positions in its orbit.



(Not drawn to scale)



As the Moon changes location from position 2 to position 6, the visible portion of the Moon as observed from Earth

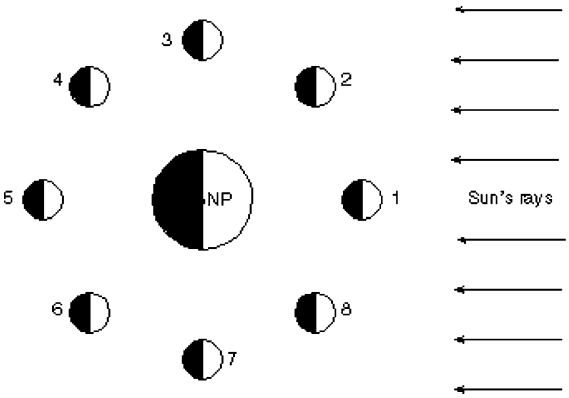
A. decreases, only

B. increases, only

C. decreases, then increases

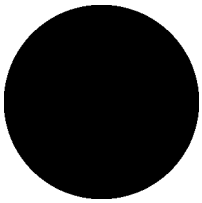
D. increases, then decreases

14. The accompanying diagram shows the Moon in different positions as it revolves around Earth, as observed from above the North Pole (NP).

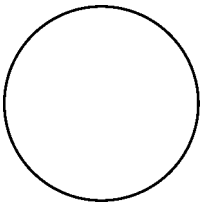


Which image correctly represents the Moon at position 8, as observed from Earth?

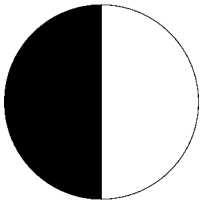
A.



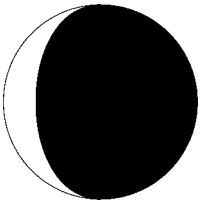
B.



C.



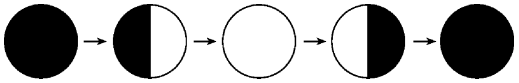
D.



15. Which diagram sequence correctly shows the order of Moon phases, as viewed from Earth, for a period of 1 month? [Note that some phases have been omitted.]

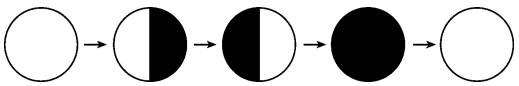
A.

B.



C.

D.



16. Base your answer(s) to the following question(s) on the calendar and data table below. The calendar shows the month of February 2007, indicating the dates when some lunar phases occurred. February 24 lists only the name of the Moon phase that occurred on that day. The data table shows the highest and lowest tides (in feet) recorded for the Hudson River at Kingston, New York, over a 2-day period in February 2007.

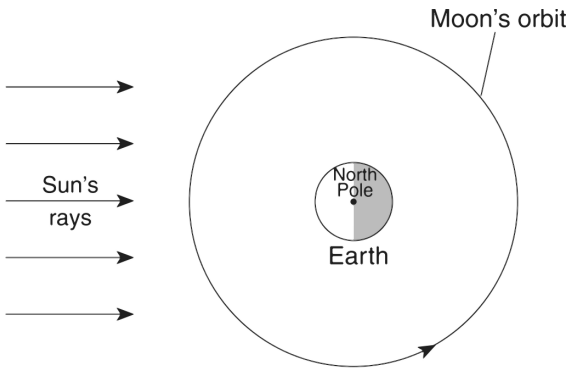
February 2007

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	Full 2	3
4	5	Old gibbous 6	7	8	9	Last quarter 10
11	12	13	14	15	16	New 17
18	19	New crescent 20	21	22	23	First quarter 24
25	26	27	28			

High and Low Tides for Kingston, New York

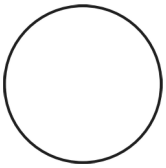
Date	Time of Day	Tide Height (ft)
Friday, February 2	1:30 a.m.	3.5
	7:30 a.m.	−0.2
	1:30 p.m.	4.1
	8:00 p.m.	−0.4
Saturday, February 3	2:00 a.m.	3.6
	8:30 a.m.	−0.2
	2:00 p.m.	4.0
	9:00 p.m.	−0.4

On the diagram below, draw a small circle (O) on the Moon's orbit to show the position of the Moon in its orbit on February 2.



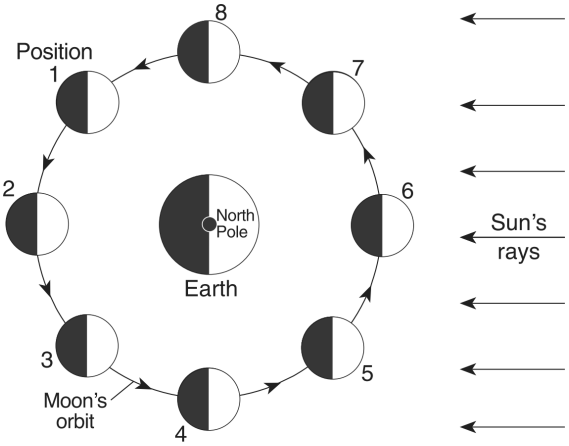
(Not drawn to scale)

17. In the circle below, shade the part of the Moon that appeared dark to an observer in New York State on February 24.



18. Predict the time of the first high tide on Sunday, February 4. Include a.m. or p.m. in your answer.

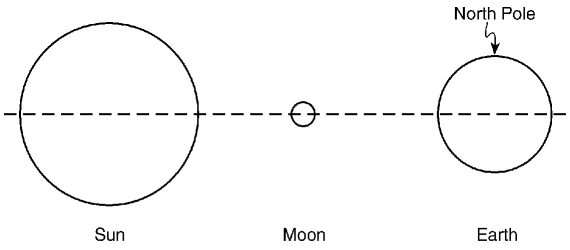
19. Base your answer(s) to the following question(s) on the diagram which represents eight positions of the Moon in its orbit around Earth.



(Not drawn to scale)

On the diagram, circle the position of the Moon where a solar eclipse is possible.

20. The diagram provided shows the Sun, the Moon, and Earth in line with one another in space.



(Not drawn to scale)

On the diagram, draw two dots (•) on the surface of Earth to indicate the locations where the highest ocean tides are most likely occurring.

Review Unit 2 - Sun, Earth, Moon 10/10/2019

1.
Answer: D
Points: 1

2.
Answer: C
Points: 1

3.
Answer: B
Points: 1

4.
Answer: A
Points: 1

5.
Answer: A
Points: 1

6.
Answer: D
Points: 1

7.
Answer: C
Points: 1

8.
Answer: B
Points: 1

9.
Answer: - Earth rotates at a rate of 15°/hr. - Earth's period of rotation is 24 hours. - Earth spins 360° in 24 hours.
Points: 1

10.
Answer:
Points: 1

11.
Answer: Polaris or North Star.
Points: 1

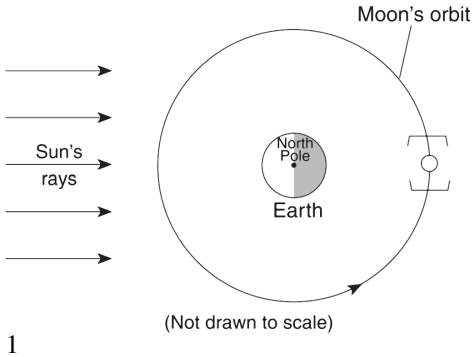
12.
Answer:
Points: 1

13.
Answer: D
Points: 1

14.
Answer: D
Points: 1

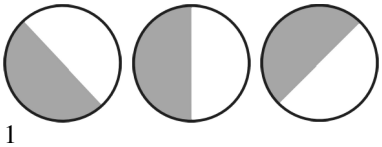
15.
Answer: B
Points: 1

16.
Answer:



Points: 1

17.
Answer:



Points: 1

18.
Answer: Any time from 2 a.m. to 4 a.m.
Points: 1

19.
Answer: Circling only position 6.
Points: 1

20.
Answer:
Points: 1