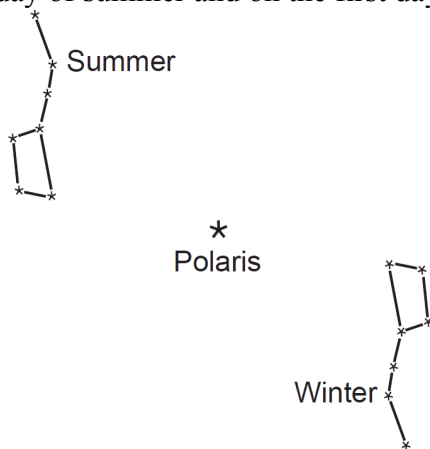


Rotation and Revolution Review

1. If Earth's rate of rotation increases, the length of one Earth day will be

- 1) shorter than 24 hours
- 2) longer than 24 hours
- 3) 24 hours, with a shorter nighttime period
- 4) 24 hours, with a longer nighttime period

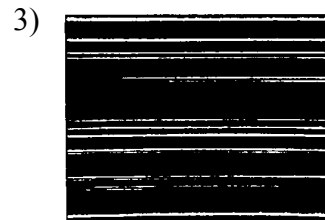
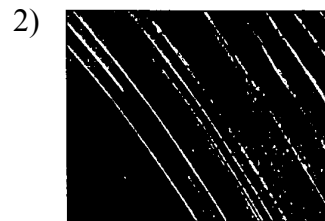
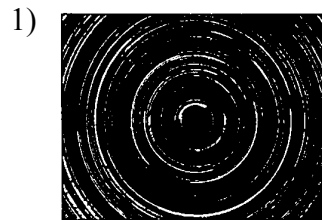
2. The diagram below represents the apparent positions of the Big Dipper, with respect to *Polaris*, as seen by an observer in New York State at midnight on the first day of summer and on the first day of winter.



The change in the apparent position of the Big Dipper between the first day of summer and the first day of winter is best explained by Earth

- 1) rotating for 12 hours
 - 2) rotating for 1 day
 - 3) revolving for 6 months
 - 4) revolving for 1 year
3. As viewed from Earth, most stars appear to move across the sky each night because
- 1) Earth revolves around the Sun
 - 2) Earth rotates on its axis
 - 3) stars orbit around Earth
 - 4) stars revolve around the center of the galaxy
4. Which term best describes the curving of Earth's planetary winds and major surface ocean currents?
- 1) El Niño
 - 2) orbital eccentricity
 - 3) Doppler effect
 - 4) Coriolis effect
5. How many degrees does the Sun appear to move across the sky in four hours?
- 1) 60°
 - 2) 45°
 - 3) 15°
 - 4) 4°

6. Which photograph of star trails was taken by an observer facing directly north in New Jersey?

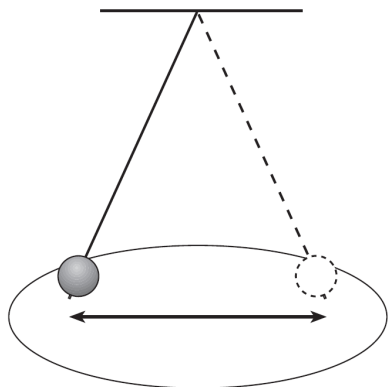


7. The apparent rising and setting of the Sun, as viewed from Earth, is caused by

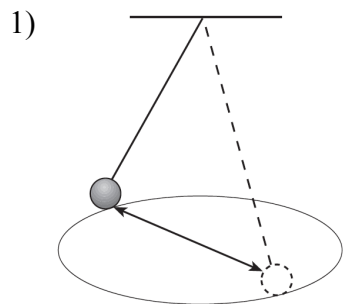
- 1) Earth's rotation
 - 2) Earth's revolution
 - 3) the Sun's rotation
 - 4) the Sun's revolution
8. Earth's planetary winds curve to the right in the Northern Hemisphere due to
- 1) the Coriolis effect
 - 2) the Doppler effect
 - 3) the tilt of Earth's axis
 - 4) Earth's gravity
9. What is Earth's approximate rate of revolution?
- 1) 1°/hour
 - 2) 1°/day
 - 3) 15°/hour
 - 4) 15°/day

Rotation and Revolution Review

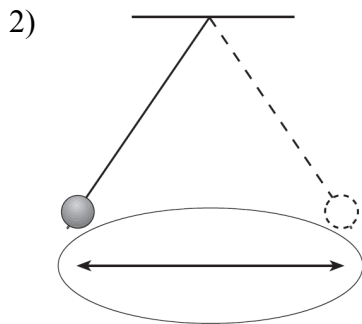
10. The diagram below represents a Foucault pendulum that is swinging back and forth.



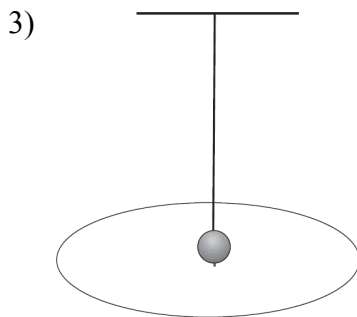
Which diagram best represents the change in the motion of a Foucault pendulum that provides evidence of Earth's rotation?



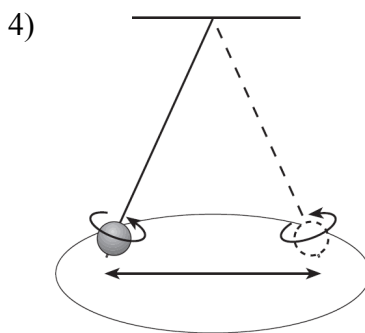
Different direction of swing



Longer length of swing



Swinging stops



Begins to spin

11. The constellation Orion is visible in New York State in the night sky during winter, but is not visible in New York State in the night sky during summer because

- 1) Earth rotates on its axis
- 2) Earth revolves around the Sun
- 3) Orion rotates on its axis
- 4) Orion revolves around the Sun

12. How long does Earth take to complete one orbit around the Sun?

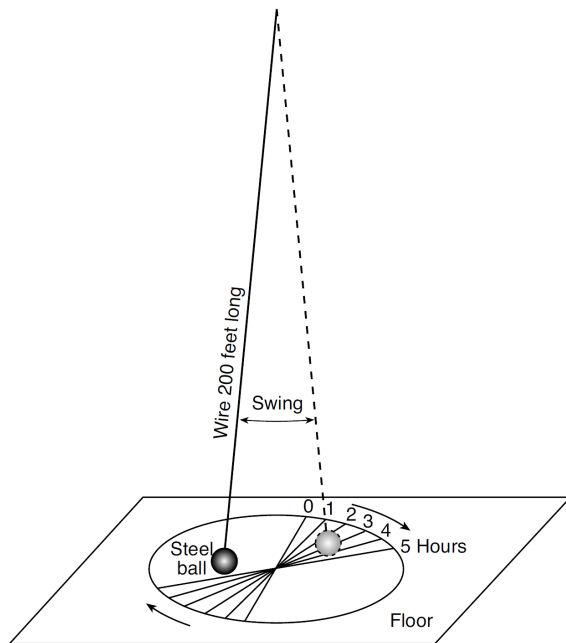
- | | |
|------------|-------------|
| 1) 1 day | 3) 1 year |
| 2) 1 month | 4) 1 decade |

13. Approximately how many degrees does Earth travel in its orbit in six months?

- 1) 30° 2) 90° 3) 180° 4) 360°

Rotation and Revolution Review

14. Base your answer to the following question on the diagram below and on your knowledge of Earth science. The diagram represents the apparent change in direction of the swing of a scientific device over a period of five hours. This device provides evidence of Earth's rotation.



Which diagram represents the correct direction of Earth's rotation?

- | | |
|------------|------------|
| <p>1) </p> | <p>3) </p> |
| <p>2) </p> | <p>4) </p> |

15. Based on observations made in the Northern Hemisphere, which statement is the best supporting evidence that the Earth rotates on its axis?

- 1) The stars appear to follow daily circular paths around Polaris.
- 2) The apparent solar diameter varies throughout the year.
- 3) The length of the daylight period varies throughout the year.
- 4) The seasons (spring, summer, fall, and winter) repeat in a cyclic pattern.

16. Different star constellations are observed from Earth at different times during the year because

- 1) constellations spin on an axis
- 2) constellations travel in an orbit around the Sun
- 3) Earth spins on its axis
- 4) Earth travels in an orbit around the Sun

Rotation and Revolution Review

17 At a location in the Northern Hemisphere, a camera was placed outside at night with the lens pointing at a group of stars. The shutter was left open for a few hours, resulting in the photograph of star trails shown below.

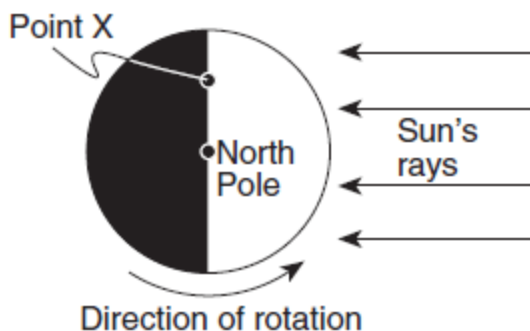


Source: <https://www.leyetscapes.com/edu/how-to-shoot-star-trails.html>

What is the name of the star in the center of the photograph that did not leave a star trail?

- 1) *Betelgeuse* 3) the Sun
- 2) *Polaris* 4) *Sirius*

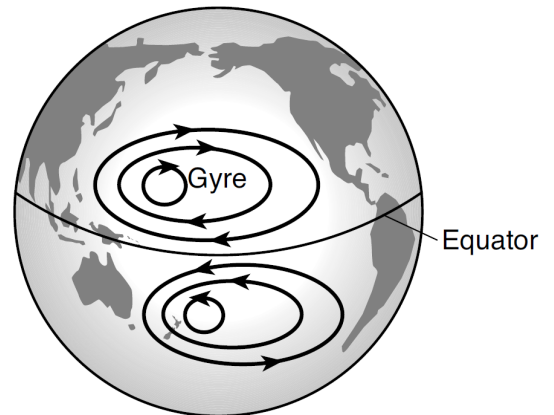
18. The diagram below represents the direction of Earth's rotation as it appears from above the North Pole. Point *X* is a location on Earth's surface.



The time at point *X* is closest to

- 1) 6 a.m. 3) 6 p.m.
- 2) 12 noon 4) 12 midnight

19. The diagram below represents the location of gyres in the Pacific Ocean. A gyre is a circular pattern of flowing ocean currents.

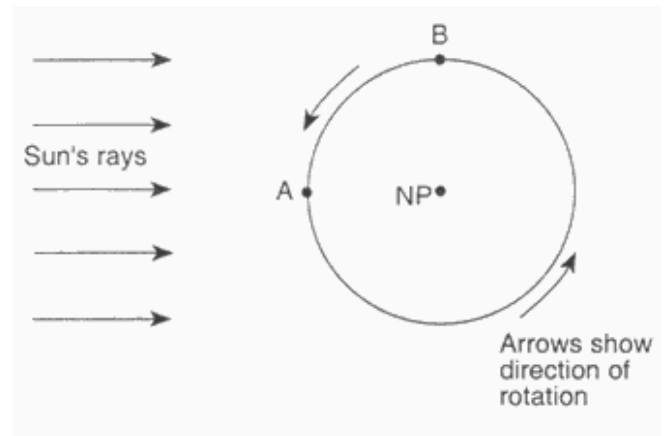


Planet Earth, Understanding Science and Nature, Time Life Inc.

The clockwise direction of flow of these currents in the Northern Hemisphere, and the counterclockwise direction of flow in the Southern Hemisphere are the result of

- 1) the Coriolis effect
- 2) the Doppler effect
- 3) Earth's magnetism
- 4) the Moon's magnetism

20. The diagram below shows Earth as viewed from above the North Pole (NP). Points *A* and *B* are locations on Earth's surface.

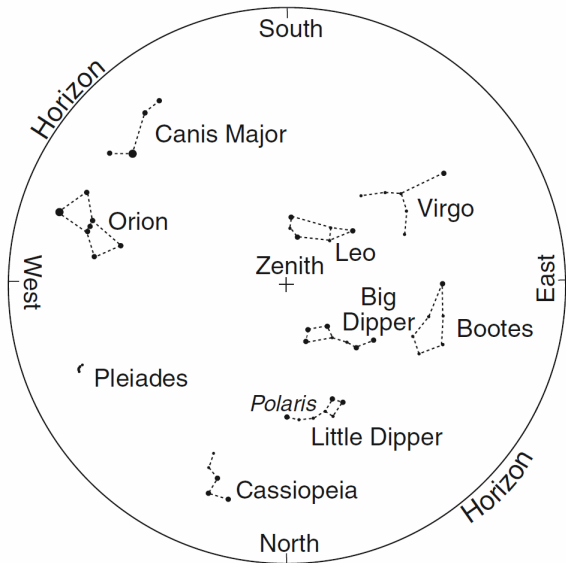


At location *A*, the time is 12 noon. What is the time at location *B*?

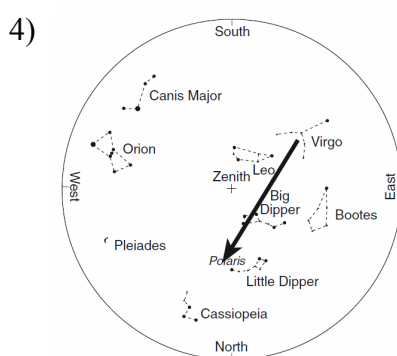
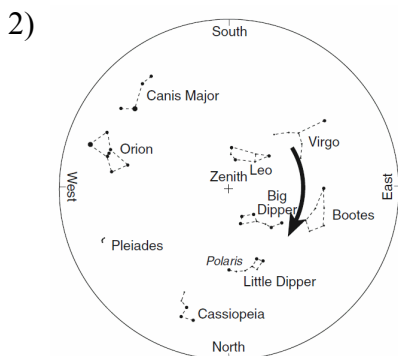
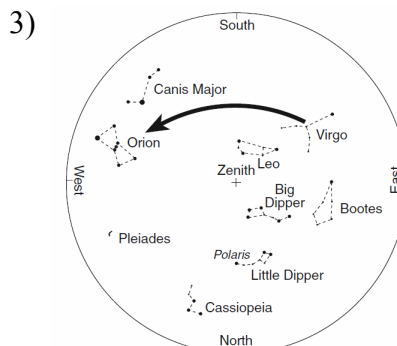
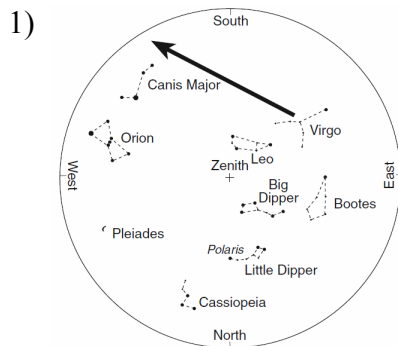
- 1) 6 a.m. 3) 3 p.m.
- 2) 6 p.m. 4) 12 midnight

Rotation and Revolution Review

21. Base your answer to the following question on the map of the night sky below, which represents the apparent locations of some of the constellations that are visible to an observer at approximately 40° N latitude at 9 p.m. in April. The point directly above the observer is labeled zenith.



Which map best illustrates the apparent path of Virgo during the next 4 hours?



Rotation and Revolution Review

22. The larger white dots in the diagrams below represent stars in the constellations Scorpius and Orion. Information indicating when these constellations are visible from New York State is provided below the diagrams.



Scorpius

Visible in the New York State
nighttime sky during July;
not visible at all in January



Orion

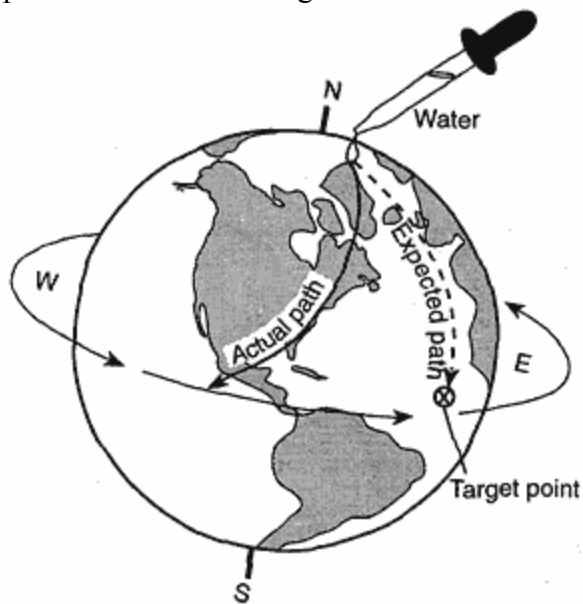
Visible in the New York State
nighttime sky during January;
not visible at all in July

Which statement best explains why these two constellations are visible in the night sky in the months identified?

- 1) Earth spins on its axis at a constant rate during a 24-hour period.
 - 2) Earth spins on its axis at a variable rate during the year.
 - 3) The nighttime side of Earth is facing different parts of our galaxy as Earth orbits the Sun.
 - 4) The nighttime side of Earth is facing different parts of our galaxy as the stars orbit Earth.
-

Rotation and Revolution Review

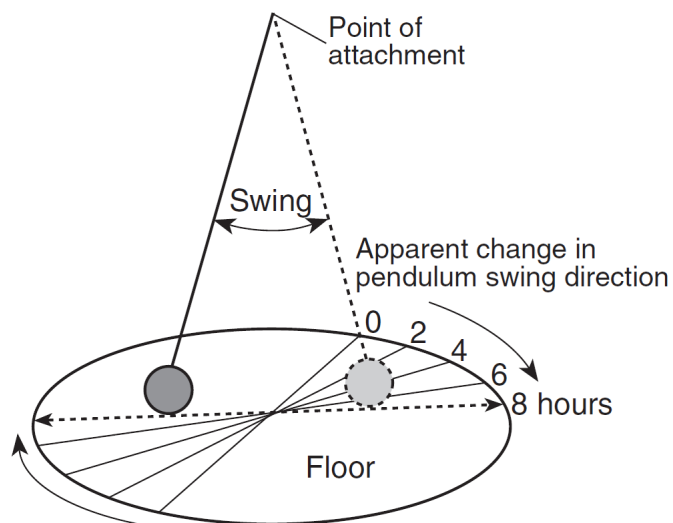
23. The diagram below represents an activity in which an eye dropper was used to place a drop of water on a spinning globe. Instead of flowing due south toward the target point, the drop followed a curved path and missed the target.



The actual path results from

- 1) the tilt of the globe's axis
- 2) the Coriolis effect
- 3) the globe's revolution
- 4) dynamic equilibrium

24. The diagram below represents the apparent changes in the direction of swing of a Foucault pendulum.

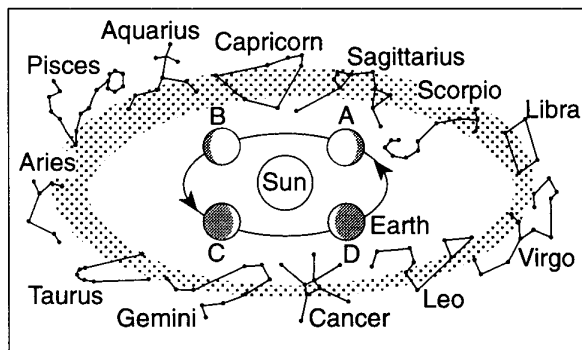


This apparent change in direction of swing provides evidence that Earth

- 1) has a spherical shape
- 2) is tilted on its axis
- 3) orbits around the Sun
- 4) turns on its axis

Rotation and Revolution Review

25. Base your answer to the following question on the diagram below which shows twelve constellations that are visible in the night sky to an observer in New York, over the course of a year. Different positions of Earth are represented by letters *A* through *D*. The arrows represent the direction of Earth's motion around the Sun.



(Not drawn to scale)

Which constellations are both visible at midnight to an observer in New York when Earth is located at position *D*?

- 1) Aries and Taurus
- 2) Pisces and Libra
- 3) Leo and Virgo
- 4) Aquarius and Scorpio