

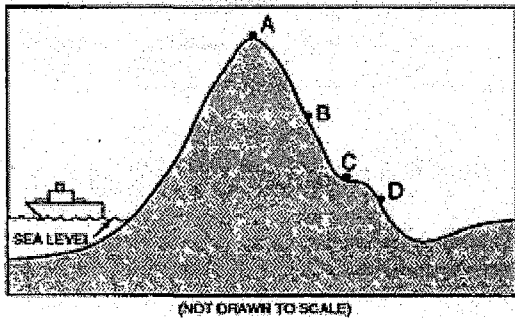
1 The Earth's actual shape is most correctly described as

- A) a circle
- B) a perfect sphere
- C) an oblate sphere
- D) an eccentric ellipse

2 Precise measurements of the Earth indicate that its polar diameter is

- A) shorter than its equatorial diameter
- B) longer than its equatorial diameter
- C) the same length as its equatorial diameter

3 In the diagram below, letters *A* through *D* represent the locations of four observers on the Earth's surface. Each observer has the same mass.



The gravitational force is strongest between the center of the Earth and the observer at location

- A) *A* B) *B* C) *C* D) *D*

4 The ozone layer protects life on Earth by absorbing harmful ultraviolet radiation. The ozone layer is located between 17 kilometers and 35 kilometers above Earth's surface in which atmospheric temperature zone?

- A) troposphere B) stratosphere
- C) mesosphere D) thermosphere

5 In which two Earth regions is oxygen the second most abundant element by volume?

- A) crust and hydrosphere
- B) hydrosphere and troposphere
- C) troposphere and core
- D) core and crust

6 What is the approximate percent of oxygen by volume present in Earth's lower atmosphere?

- A) 21% B) 33% C) 46% D) 94%

7 In which two temperature zones of the atmosphere does the temperature increase with increasing altitude?

- A) troposphere and stratosphere
- B) troposphere and mesosphere
- C) stratosphere and thermosphere
- D) mesosphere and thermosphere

8 An air temperature of 95°C most often exists in which layer of the atmosphere?

- A) troposphere B) stratosphere
- C) mesosphere D) thermosphere

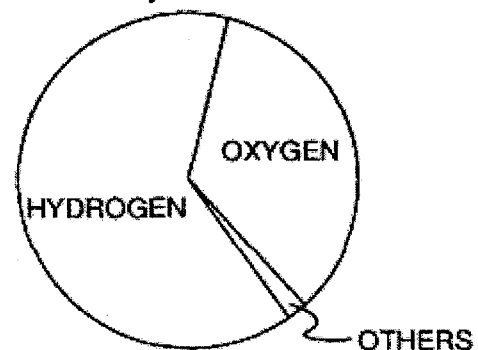
9 In which atmospheric layer is most water vapor found?

- A) troposphere B) stratosphere
- C) thermosphere D) mesosphere

10 Earth's hydrosphere is best described as the

- A) solid outer layer of Earth
- B) liquid outer layer of Earth
- C) magma layer located below Earth's stiffer mantle
- D) gaseous layer extending several hundred kilometers from Earth into space

11 The graph below represents percentage of elements by volume.



This graph best represents the elements of the Earth's

- A) lithosphere B) hydrosphere
- C) troposphere D) stratosphere

12 Which two elements make up the greatest percentages by mass in Earth's crust?

- A) oxygen and potassium
- B) oxygen and silicon
- C) aluminum and potassium
- D) aluminum and silicon

13 The layer of bedrock near the Earth's surface that forms a continuous shell around the Earth is called the

- A) troposphere B) stratosphere
- C) lithosphere D) hydrosphere

14 When the time of day for a certain ship at sea is 8 pm, the time of day at the Prime Meridian (0° longitude) is 3 p.m. What is the ship's longitude?

- A) 45° W B) 45° E
- C) 75° W D) 75° E

15 On April 21, the altitude of *Polaris*, as viewed from a location in New York State, was measured as 41.3° . What will the altitude of *Polaris* be when viewed one month later, on May 21, from the same location?

- A) 23.5° B) 41.3°
- C) 66.7° D) 90°

16 New York State's highest peak, Mt. Marcy, is located at approximately

- A) $44^\circ 10'$ N $74^\circ 05'$ W
- B) $44^\circ 05'$ N $73^\circ 55'$ W
- C) $73^\circ 55'$ N $44^\circ 10'$ W
- D) $74^\circ 05'$ N $44^\circ 05'$ W

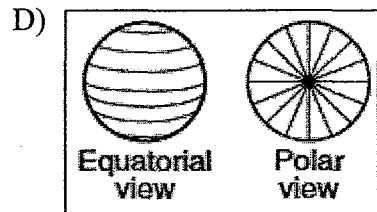
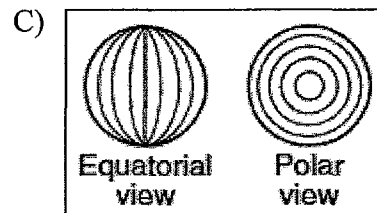
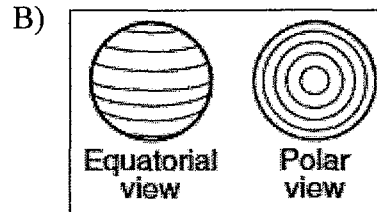
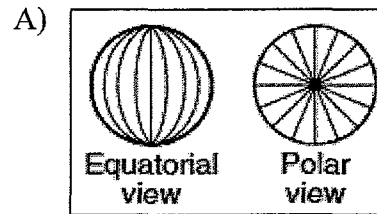
17 Which New York State city is located at $42^\circ 39'$ N $73^\circ 45'$ W?

- A) Buffalo B) Albany
- C) Ithaca D) Plattsburgh

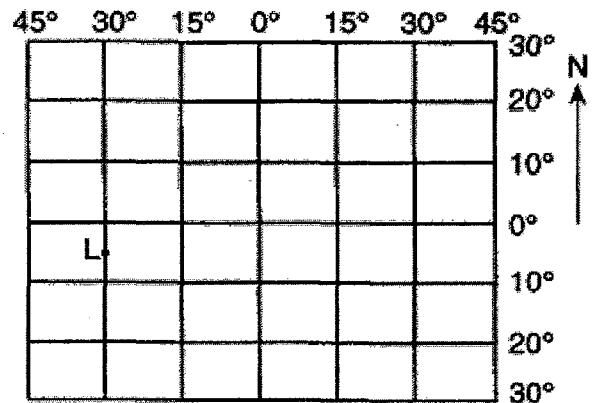
18 If an observer on Earth views *Polaris* on the horizon, the observer is located at the

- A) equator (0°)
- B) North Pole (90° N)
- C) Tropic of Cancer (23.5° N)
- D) Tropic of Capricorn (23.5° S)

19 The lines on which set of views best represent Earth's latitude system?



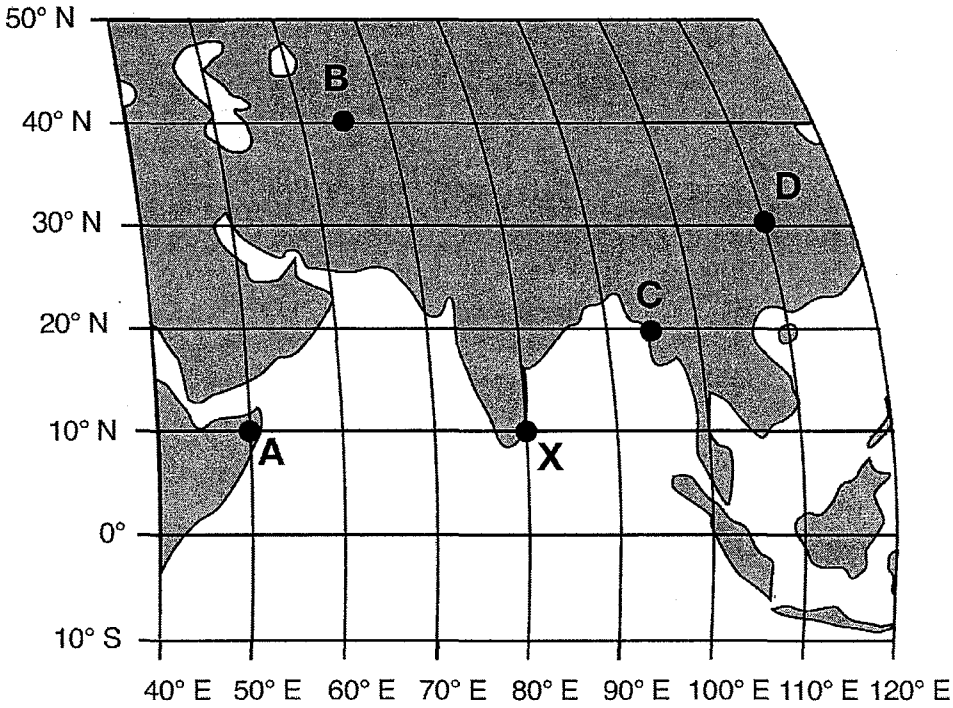
20 The diagram below represents part of Earth's latitude-longitude system.



What is the latitude and longitude of point L?

- A) 5° E 30° N B) 5° W 30° S
- C) 5° N 30° E D) 5° S 30° W

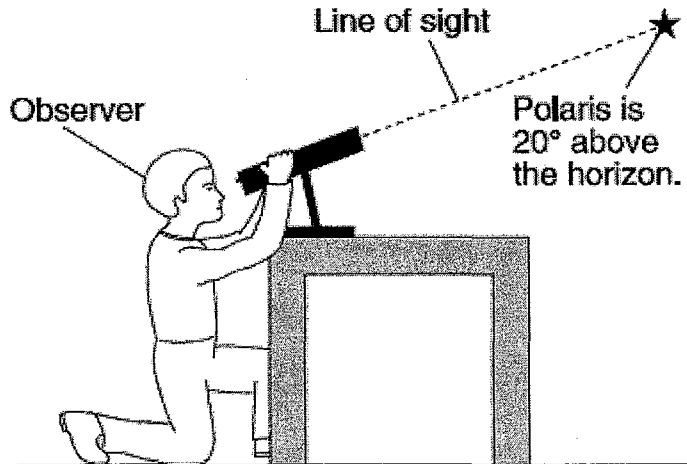
21 The map below shows a portion of Earth's system of latitude and longitude and five surface locations labeled *A*, *B*, *C*, *D*, and *X*.



It is solar noon at location *X*. At which location will solar noon next occur?

- A) *A*
- B) *B*
- C) *C*
- D) *D*

22 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

1stQreview2-2017

23 Which reference line passes through both the geographic North Pole and the geographic South Pole?

- A) 0° latitude
- B) 0° longitude
- C) Tropic of Cancer
- D) Tropic of Capricorn

24 As the altitude increases within Earth's stratosphere, air temperature generally

- A) decreases, only
- B) increases, only
- C) decreases, then increases
- D) increases, then decreases

25 Why do most clouds form in the troposphere?

- A) Air pressure rises with increasing altitude
 - B) The dewpoint is too high in the other layers of the atmosphere.
 - C) The other layers of the atmosphere are too cold to contain water.
 - D) The lowest 11 km of the atmosphere contains almost all of the atmospheric water vapor.
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