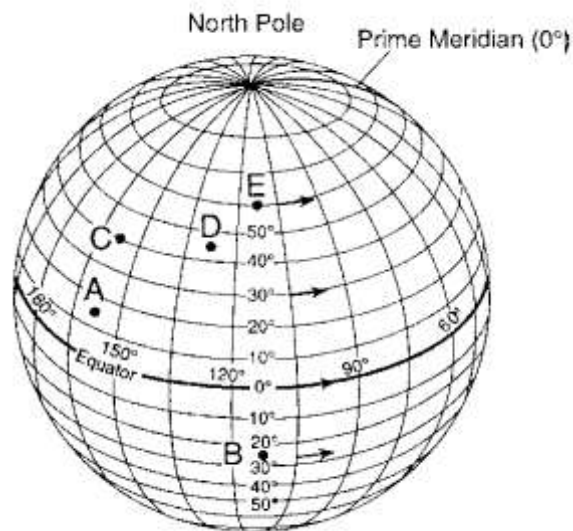




9. Which list puts the outer portions of the Earth in order of decreasing thickness?
- (1) hydrosphere, lithosphere, atmosphere
  - (2) lithosphere, hydrosphere, atmosphere
  - (3) atmosphere, hydrosphere, lithosphere
  - (4) atmosphere, lithosphere, hydrosphere

- 10.. Which lists four gases found in abundance in the troposphere?
- (1) oxygen, carbon dioxide, nitrogen, water vapor
  - (2) carbon dioxide, sulfur dioxide, nitrogen dioxide, ozone
  - (3) nitrogen, oxygen, hydrogen, helium
  - (4) water vapor, nitrogen, neon, xenon

Use the diagram below to answer **questions 11-13**.



11. What is the approximate latitude and longitude of location B?

- (1) 20°S, 112°E
- (2) 20°N, 112°W
- (3) 25°S, 112°W
- (4) 112°S, 25°W

12. If a person traveled from position C to position A, the observed altitude of Polaris would
- (1) decrease
  - (2) increase
  - (3) remain the same

13. Which position would be closest to the Hawaii Hot Spot

- (1) A
- (2) B
- (3) E
- (4) D

14. The time difference between two cities is 5 hours. How many degrees longitude separate these two cities?

- (1) 30°
- (2) 45°
- (3) 60°
- (4) 75°

15. According to the Earth Science Reference Tables, the location of Mt. Marcy is:

- (1) 74° 05'N, 44° 10' W
- (2) 44° 10'N, 73° 55' W
- (3) 73° 55'N, 44° 10' W
- (4) 44° 45'N, 74° 05'W

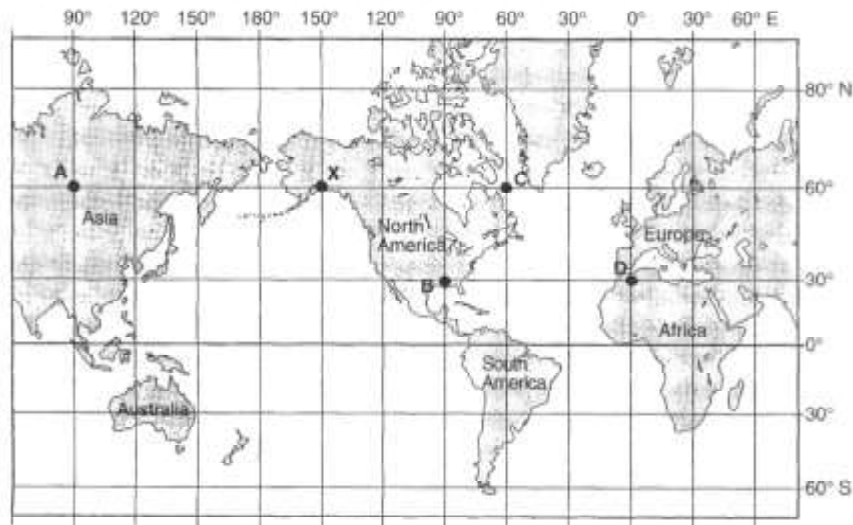
16. The time at 15°E longitude is 4:00pm. What time would it be at 15°W longitude?

- (1) 1:00pm
- (2) 2:00pm
- (3) 6:00pm
- (4) 12:00pm



Use the diagram below to answer **questions 25-29**.

Letters A, B, C, D, and X on the map below represent locations on the Earth. The map shows the latitude-longitude grid.



25. Between which two points would an observer have to travel for the altitude of Polaris to remain constant the entire trip?

- (1) X to C
- (2) B to X
- (3) D to C
- (4) A to B

26. What is the longitude interval of the map?

- (1) 15°
- (2) 30°
- (3) 90°
- (4) 60°

27. How many hours of time exist between points B and C?

- (1) 1
- (2) 2
- (3) 3
- (4) 0

28. What would points A, X, and C have in common?

- (1) they would all observe the same altitude of Polaris
- (2) they are in the same time zone
- (3) they are all part of the lithosphere
- (4) they are on the same longitude

29. If the time at point C is 9:00pm, what time would it be at point X?

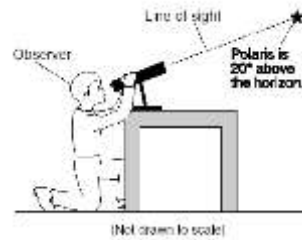
- (1) 12:00am
- (2) 9:00pm
- (3) 3:00pm
- (4) 6:00pm

30. If the base of a cloud is located at an altitude of 2 kilometers and the top of the cloud is located at an altitude of 8 kilometers, this cloud is located in the

- (1) troposphere, only
- (2) stratosphere, only
- (3) troposphere and stratosphere
- (4) stratosphere and mesosphere

31. The diagram below shows an observer measuring the altitude of *Polaris*. What is the latitude of the observer?

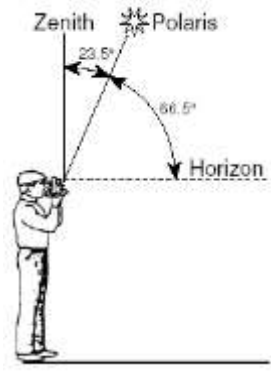
- (1)  $20^\circ$  N
- (2)  $20^\circ$  S
- (3)  $70^\circ$  N
- (4)  $70^\circ$  S



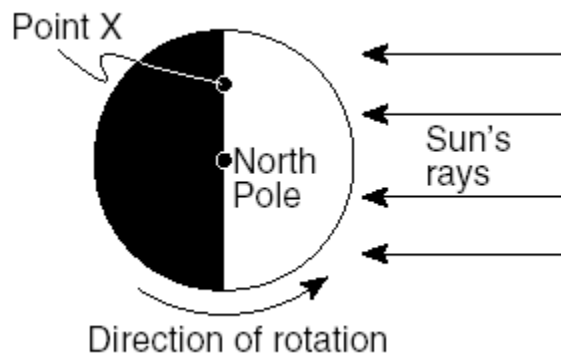
32. The diagram below shows an observer on Earth measuring the altitude of *Polaris*.

What is the latitude of this observer?

- (1)  $90^\circ$  N
- (2)  $66.5^\circ$  N
- (3)  $43^\circ$  N
- (4)  $23.5^\circ$  N



33. 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.
- (2) 12 noon
- (3) 6 p.m.
- (4) 12 midnight