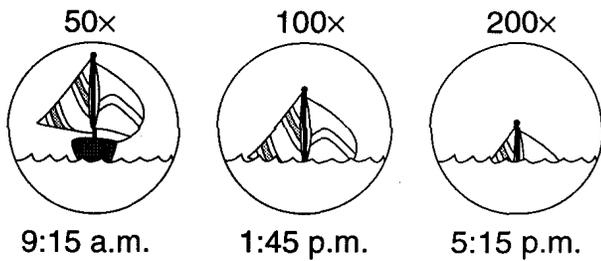


## Mid Term Prep-Shape of the Earth

1. The Earth is slightly flattened from a perfect spherical shape because of

- A) its rotation
- B) the pull of the sun and moon
- C) storms on the sun's surface
- D) its molten core

2. The diagrams below represent photographs of a large sailboat taken through a telescope over time as the boat sailed away from shore out to sea. Each diagram shows the magnification of the lenses and the time of day.



Which statement best explains the apparent sinking of this sailboat?

- A) The sailboat is moving around the curved surface of Earth.
- B) The sailboat appears smaller as it moves farther away.
- C) The change in density of the atmosphere is causing refraction of light rays.
- D) The tide is causing an increase in the depth of the ocean.

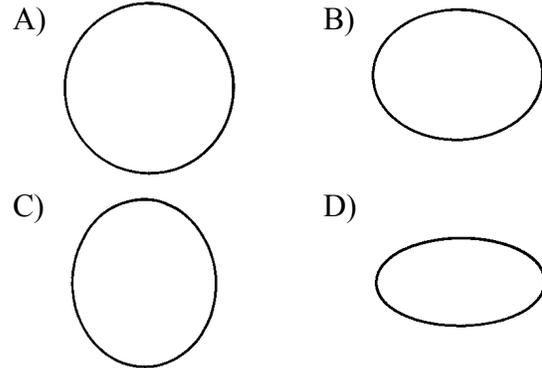
3. The Earth's actual shape is most correctly described as

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

4. Compared to the weight of a person at the North Pole, the weight of the same person at the Equator would be

- A) slightly less, because the person is farther from the center of Earth
- B) slightly less, because the person is closer to the center of Earth
- C) slightly more, because the person is farther from the center of Earth
- D) slightly more, because the person is closer to the center of Earth

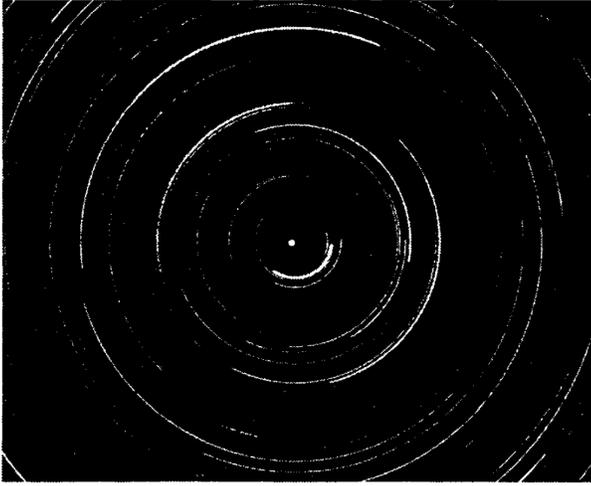
5. Which diagram most accurately shows the cross-sectional shape of the Earth drawn to scale?



## Mid Term Prep-Shape of the Earth

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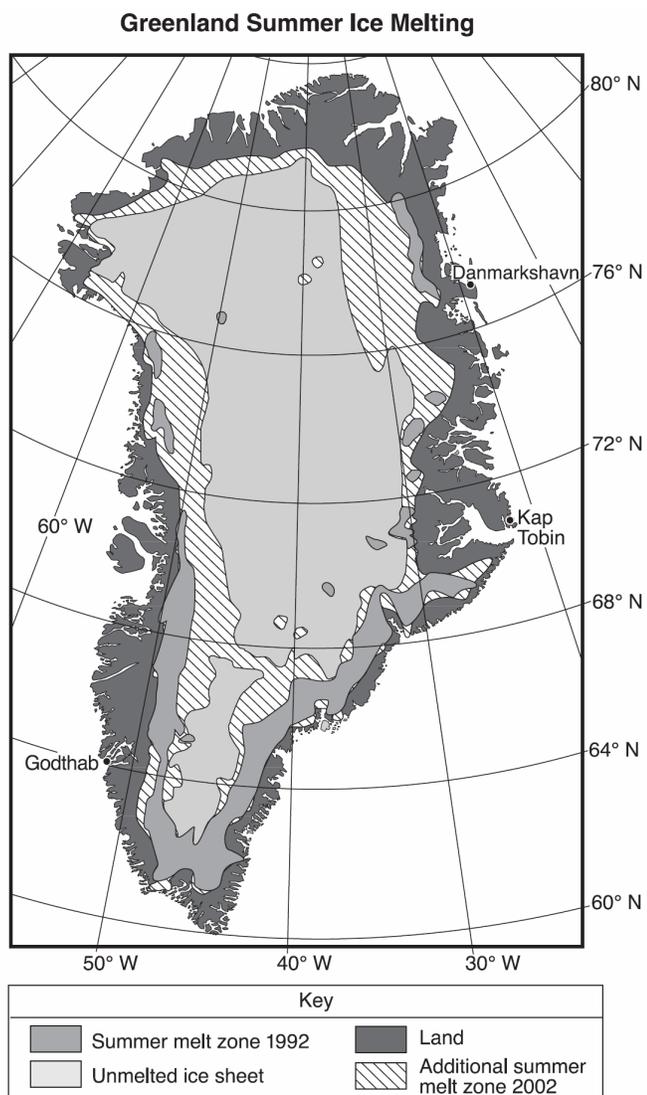
Base your answers to questions 6 and 7 on the time-exposure photograph shown below. The photograph was taken by aiming a camera at a portion of the night sky above a New York State location and leaving the camera's shutter open for a period of time to record star trails.



6. During the time exposure of the photograph, the stars appear to have moved through an arc of  $120^\circ$ . How many hours did this time exposure take?
- A) 5 h                      B) 8 h                      C) 12 h                      D) 15 h
7. Which celestial object is shown in the photograph near the center of the star trails?
- A) the Sun                      B) the Moon                      C) *Sirius*                      D) *Polaris*
- 
8. A ship is at a location of  $40^\circ$  S  $77^\circ$  W. Which type of surface ocean current and tectonic plate boundary are located beneath this ship?
- A) warm ocean current and a transform boundary  
B) warm ocean current and a convergent boundary  
C) cool ocean current and a transform boundary  
D) cool ocean current and a convergent boundary
-

## Mid Term Prep-Shape of the Earth

9. Base your answer to the following question on the following map and passage. The map shows the extent of summer ice-melt zones on Greenland in 1992 and 2002. The summer melt zone is an area where summer heat turns snow and ice around the edges of the ice sheet into slush and ponds of meltwater. Three coastal locations are shown on the map.



### Arctic Meltdown

Scientists are concerned because average arctic temperatures are rising. The Greenland Ice Sheet, the dominant area of continental ice in the arctic region, broke all previous records for melting in 2002. In 2004, the total amount of ice resting on top of the continental crust in the arctic region was estimated to be about 3,100,000 cubic kilometers. If all this ice were to melt, the ocean levels would

## Mid Term Prep-Shape of the Earth

rise approximately 8.5 meters. A reduction in ice-covered areas exposes more land surfaces. This increases absorption of insolation and accelerates arctic warming. Scientists continue to collect data to define the role of greenhouse gases in the warming of the arctic region.

What is the approximate latitude and longitude of Godthab, Greenland?

- A)  $51.5^\circ$  N  $64^\circ$  W   B)  $70.5^\circ$  N  $22^\circ$  W   C)  $64^\circ$  N  $51.5^\circ$  W   D)  $22^\circ$  N  $70.5^\circ$  W

10. What is the approximate altitude of *Polaris* at Syracuse, New York?

- A)  $43^\circ$    B)  $47^\circ$    C)  $76^\circ$    D)  $90^\circ$

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

- A) equator ( $0^\circ$ )  
B) North Pole ( $90^\circ$  N)  
C) Tropic of Cancer ( $23.5^\circ$  N)  
D) Tropic of Capricorn ( $23.5^\circ$  S)

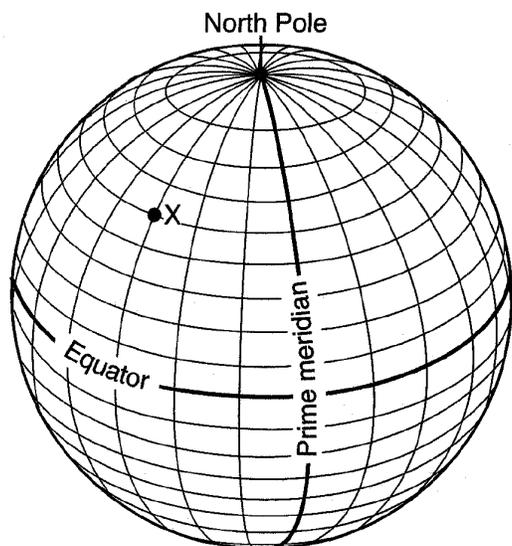
12. From Utica, New York, *Polaris* is observed at an altitude of approximately

- A)  $43^\circ$    B)  $47^\circ$    C)  $75^\circ$    D)  $90^\circ$

13. At which New York State location would an observer measure the highest altitude of *Polaris*?

- A) New York City   B) Slide Mountain  
C) Niagara Falls   D) Plattsburgh

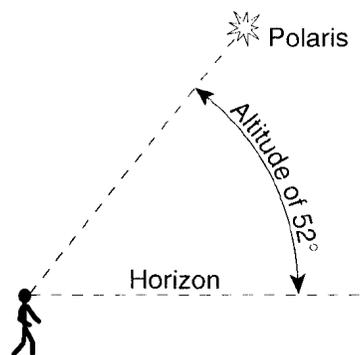
14. The diagram below shows latitude measurements every 10 degrees and longitude measurements every 15 degrees.



What is the latitude and longitude of point X?

- A)  $40^\circ$  S  $45^\circ$  E   B)  $50^\circ$  N  $45^\circ$  W  
C)  $60^\circ$  S  $30^\circ$  W   D)  $75^\circ$  N  $30^\circ$  E

15. The diagram below shows an observer on Earth viewing the star *Polaris*.



What is the observer's latitude?

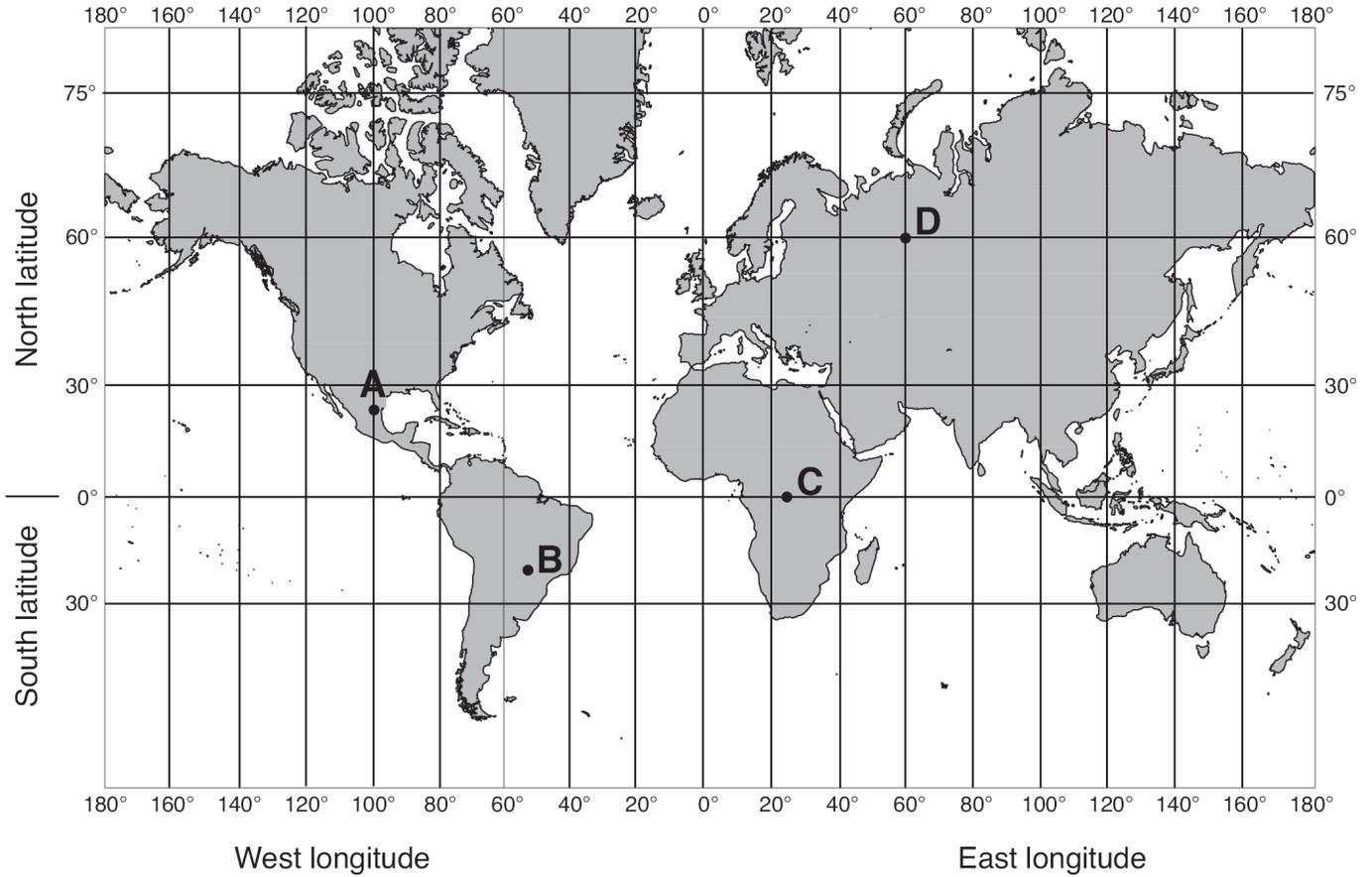
- A)  $38^\circ$  N   B)  $38^\circ$  S  
C)  $52^\circ$  N   D)  $52^\circ$  S

16. What time is it in Greenwich, England (at  $0^\circ$  longitude), when it is noon in Massena, New York?

- A) 7 a.m.   B) noon  
C) 5 p.m.   D) 10 p.m.

## Mid Term Prep-Shape of the Earth

17. Base your answer to the following question on the world map below. Letters *A* through *D* represent locations on Earth's surface.



At which location could an observer *not* see *Polaris* in the night sky at any time during the year?

A) A

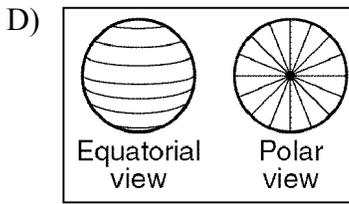
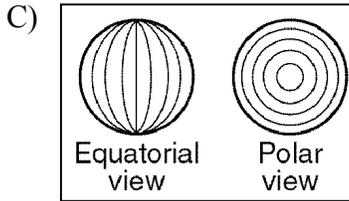
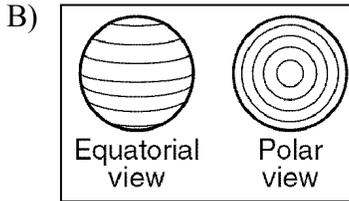
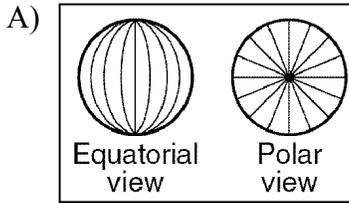
B) B

C) C

D) D

## Mid Term Prep-Shape of the Earth

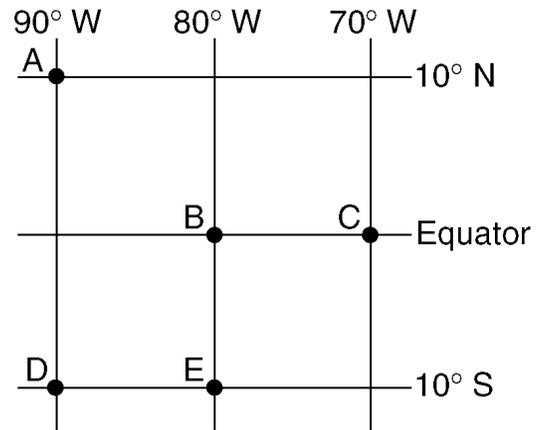
18. The lines on which set of views best represent Earth's latitude system?



19. As a ship crosses the Prime Meridian, an observer on the ship measures the altitude of *Polaris* at  $60^\circ$ . What is the ship's location?

- A)  $60^\circ$  south latitude and  $0^\circ$  longitude
- B)  $60^\circ$  north latitude and  $0^\circ$  longitude
- C)  $0^\circ$  latitude and  $60^\circ$  east longitude
- D)  $0^\circ$  latitude and  $60^\circ$  west longitude

20. Base your answer to the following question on the map below, which shows the latitude and longitude of five observers, *A*, *B*, *C*, *D*, and *E*, on Earth.



Which two observers would be experiencing the same apparent solar time?

- A) *A* and *C*
- B) *B* and *C*
- C) *B* and *E*
- D) *D* and *E*

21. Approximately what are the coordinates of the Hawaii Hot Spot?

- A)  $50^\circ$  N,  $120^\circ$  W
- B)  $25^\circ$  N,  $158^\circ$  E
- C)  $25^\circ$  N,  $158^\circ$  W
- D)  $25^\circ$  S,  $158^\circ$  E