

**JD's** REGENTS PREPARATION, LLC.

-Presents-

# Earth Science

REGENTS EXAM  
REVIEW MANUAL

WITH 6 REGENTS EXAMS,  
4 TOPICALLY ORGANIZED

**SPECIAL EDITION**

*Each Question Linked is  
to a Solution Video*

*QR Coded for One to One Initiative*



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# Earth Science

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**June 2019 Earth Science Regents Exam**

**August 2019 Earth Science Regents Exam**

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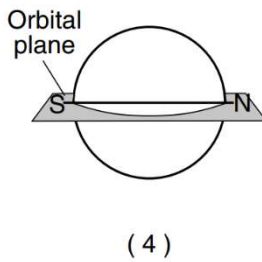
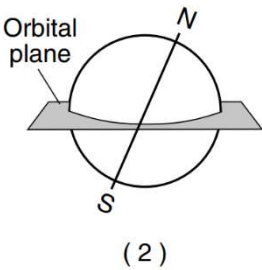
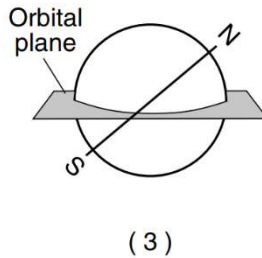
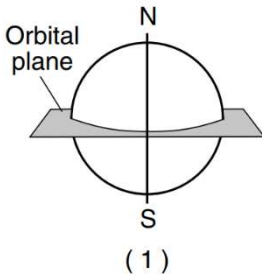
# The Development of the Heliocentric Model

1. The best evidence of Earth's rotation is provided by the
  - (1) Foucault pendulum and global warming
  - (2) Foucault pendulum and Coriolis effect
  - (3) Moon phases and global warming
  - (4) Moon phases and Coriolis effect
  
2. Which diagram best represents Earth's axis position relative to Earth's orbital plane?

08 17 03



08 17 26



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The Development of the Heliocentric Model

3. In 1851, French physicist Léon Foucault used a swinging pendulum to demonstrate that Earth
- (1) is rotating
  - (2) is revolving
  - (3) has a curved surface
  - (4) has a gravitational pull

06 18 04



4. Which equation is used to determine the approximate rate of Earth's revolution?

08 18 30



(1) Approximate rate of Earth's revolution =  $\frac{365^\circ}{360 \text{ days}}$

(2) Approximate rate of Earth's revolution =  $\frac{360^\circ}{24 \text{ hours}}$

(3) Approximate rate of Earth's revolution =  $\frac{360^\circ}{365 \text{ days}}$

(4) Approximate rate of Earth's revolution =  $\frac{24^\circ}{360 \text{ hours}}$

# Heliocentric Earth Models and Their Effects

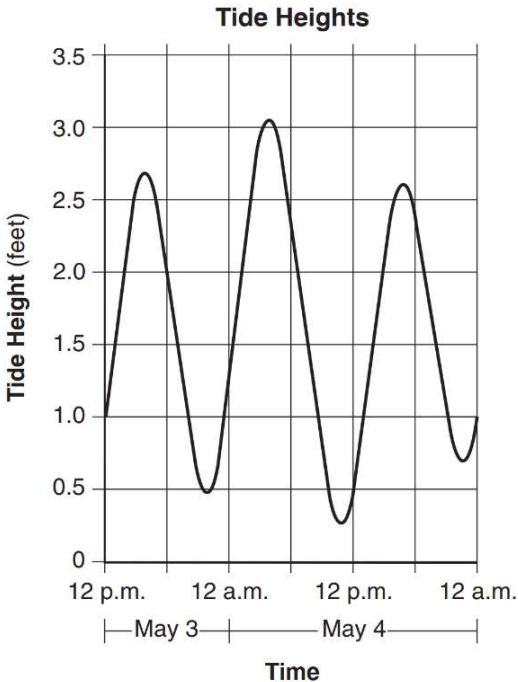
1. During which month does the Sun rise north of due east in New York State?
  - (1) February
  - (2) July
  - (3) October
  - (4) December

06 17 07



2. The graph below shows the change in tide heights of the Hudson River at Newburgh, New York.

06 17 08

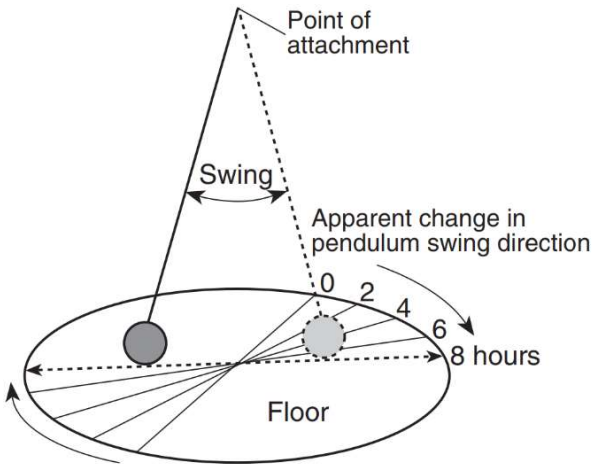


According to the graph, the time difference between high tide and the next low tide is approximately

- (1) 2 hours
- (2) 3 hours
- (3) 6 hours
- (4) 12 hours

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

06 17 11



This apparent change in the direction of swing provides evidence that Earth

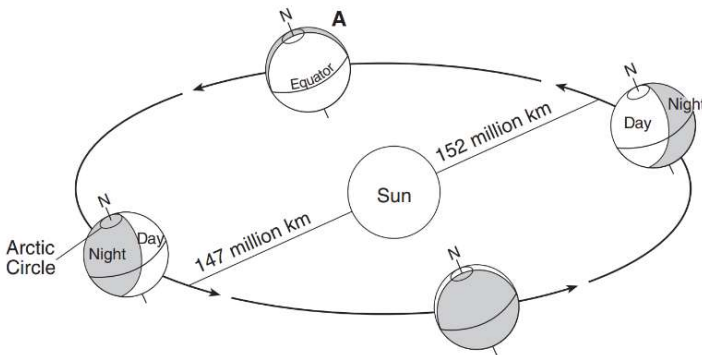
- (1) has a spherical shape
- (2) is tilted on its axis
- (3) orbits around the Sun
- (4) turns on its axis



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Heliocentric Earth Motions and Their Effects

Base your answers to questions 4 through 6 on the diagram below and on your knowledge of Earth science. The diagram represents Earth's position in its orbit on the first day of each of the four seasons, one of which is labeled A. The North Pole is labeled *N*. Earth's closest distance to the Sun and Earth's farthest distance from the Sun are labeled in kilometers.

06 17 36-38



(Not drawn to scale)

4. How many hours (h) of daylight are received at the Arctic Circle when Earth is at position A?
- (1) 0 h
  - (2) 12 h
  - (3) 18 h
  - (4) 24 h

15. 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.

06 18 12



**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

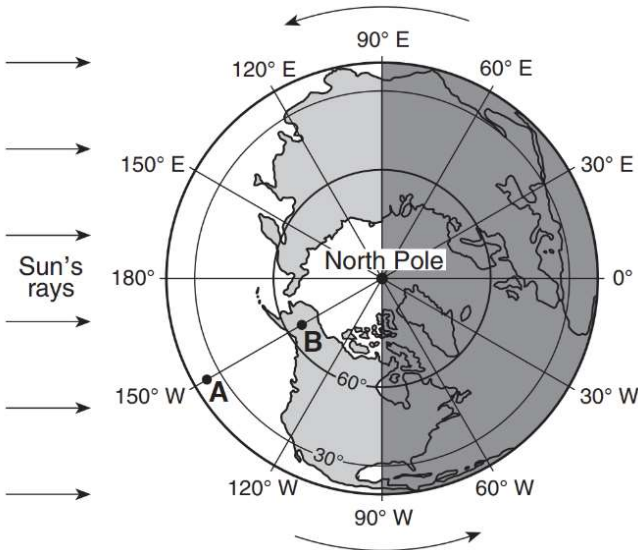
Which statement best explains why these two constellations are visible in the night sky in the months identified?

- (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.

# Earth's Coordinate System and Mapping

1. The diagram below represents a view of Earth from above the North Pole. Points *A* and *B* represent locations on Earth's surface.

06.17.14

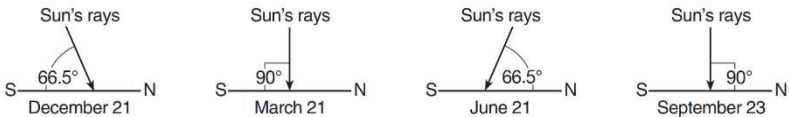


- Locations *A* and *B* have the same
- (1) latitude and local time
  - (2) latitude and elevation
  - (3) longitude and local time
  - (4) longitude and elevation

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Earth's Coordinate System and Mapping

2. The diagrams on the next page represent the compass direction and altitude of the Sun's rays at noon for a location on Earth on four different dates.

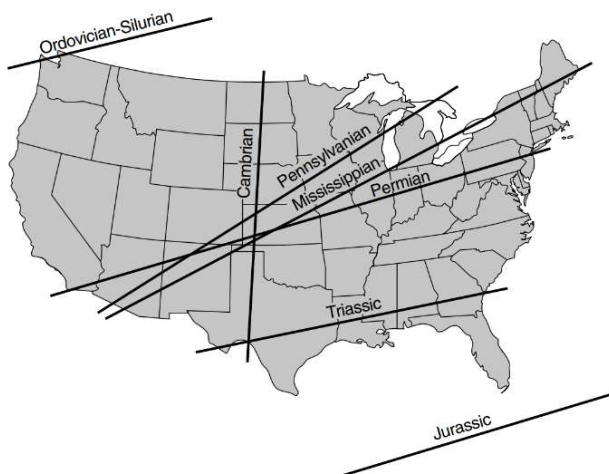
06 17 32



What is the latitude of this location?

- (1)  $0^\circ$
  - (2)  $23.5^\circ \text{ N}$
  - (3)  $23.5^\circ \text{ S}$
  - (4)  $90^\circ \text{ N}$
3. Labeled lines on the map below show the inferred location of Earth's equator during the middle of several geologic periods.

08 17 32



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Earth's Coordinate System and Mapping

Approximately how many million years ago (mya) was the region around current-day Watertown, New York, located the nearest to the equator?

- (1) 270 mya
- (2) 300 mya
- (3) 340 mya
- (4) 450 mya

Base your answers to questions 4 through 7 on the data table below, the map on the next page and on your knowledge of Earth science. The data table shows latitude and longitude locations of the center of Hurricane Odile recorded at the same time each day from September 12 to September 18, 2014. The data table also shows the hurricane's barometric pressure in millibars (mb) and wind speed in knots (kt). The location of La Paz, Mexico, is indicated on the map

08 17 69-72

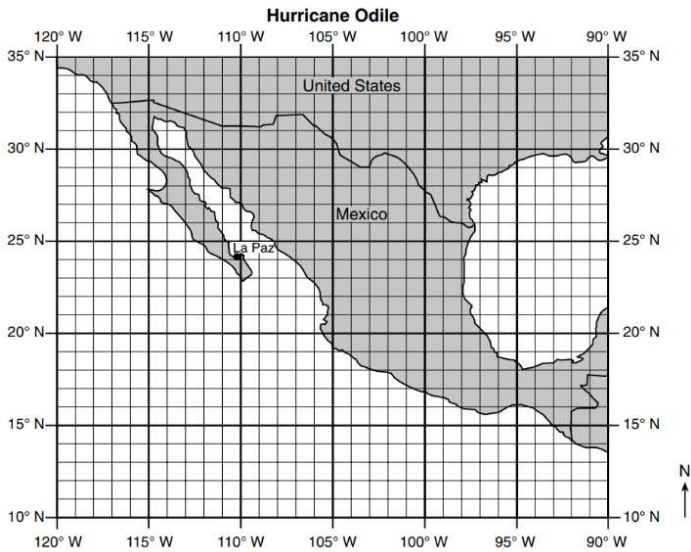


**Hurricane Odile**

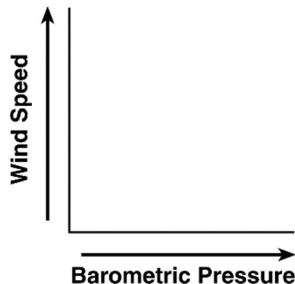
Date	Location		Barometric Pressure (mb)	Wind Speed (kt)
	Latitude (° N)	Longitude (° W)		
September 12	15	105	993	50
September 13	16	106	983	65
September 14	19	107	918	120
September 15	23	110	941	110
September 16	27	113	987	55
September 17	30	114	995	40
September 18	31	112	1003	25

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Earth's Coordinate System and Mapping

4. On the map below, plot the seven locations of Hurricane Odile indicated by the latitudes and longitudes shown in the data table. Connect *all seven* plots with a line.

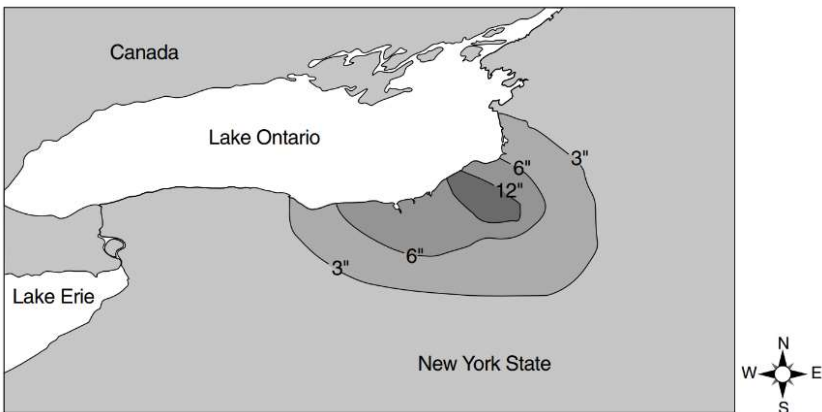


5. Using the set of axes below, draw a line to represent the general relationship between barometric pressure and wind speed associated with Hurricane Odile.



- Identify *one* weather instrument that was used to measure the wind speed of Hurricane Odile.
- Describe *two* actions that a person living in La Paz, Mexico, could take to prepare for an approaching hurricane.
- The isolines on the map below show snowfall totals from a lake-effect storm that affected a portion of New York State.

08 18 32



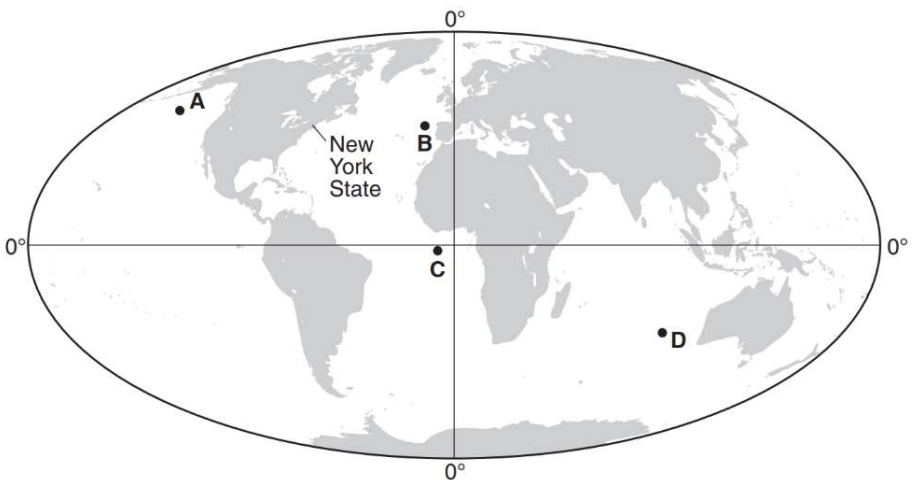
The surface winds that produced this storm came from which direction?

- northwest
- northeast
- southeast
- southwest

## Our System of Time

1. The map below shows the present-day positions of the continents. Points *A* through *D* represent locations on Earth's surface. The location of New York State on the North American continent is indicated.

06 17 33



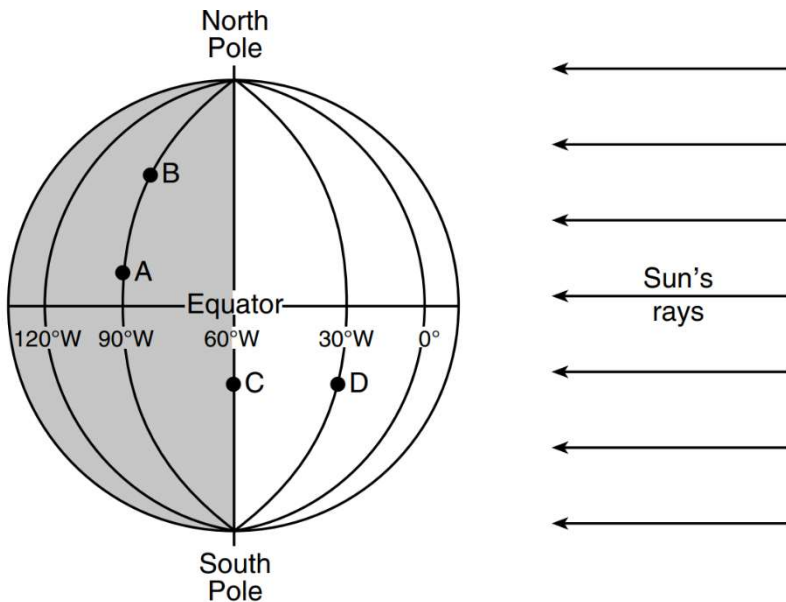
Which letter best represents the inferred position of the New York State region on Earth at the end of the Devonian Period?

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



Base your answers to questions 2 through 4 on the diagram below and on your knowledge of Earth science. The diagram represents Earth on the first day of a season. The equator, several lines of longitude, and the North and South Poles have been labeled. Letters A through D represent locations on Earth's surface.

08 17 66-68

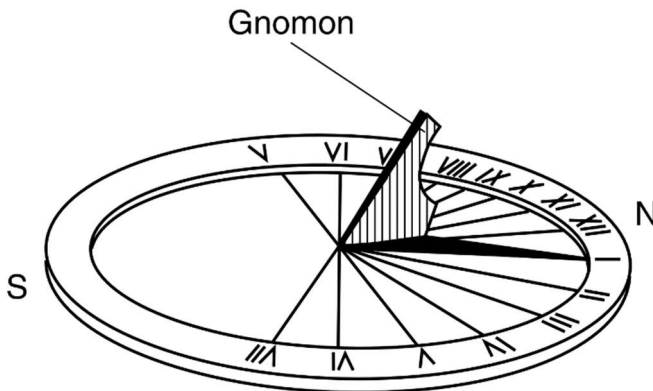


2. Identify *one* possible date that is represented by the position of Earth in this diagram
3. State whether the relative altitude of *Polaris* at location A is lower or higher than at location B. Explain why this difference is observed.

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Our System of Time

4. State the solar time at location *D* if the solar time at location *C* is 6:00 a.m. Indicate a.m. or p.m. in your answer.
5. The diagram below represents a sundial positioned in New York State. During daylight, the shadow cast by the gnomon (pointer) moves across the disc, with the tip of the shadow pointing to the time of day.

08 18 01

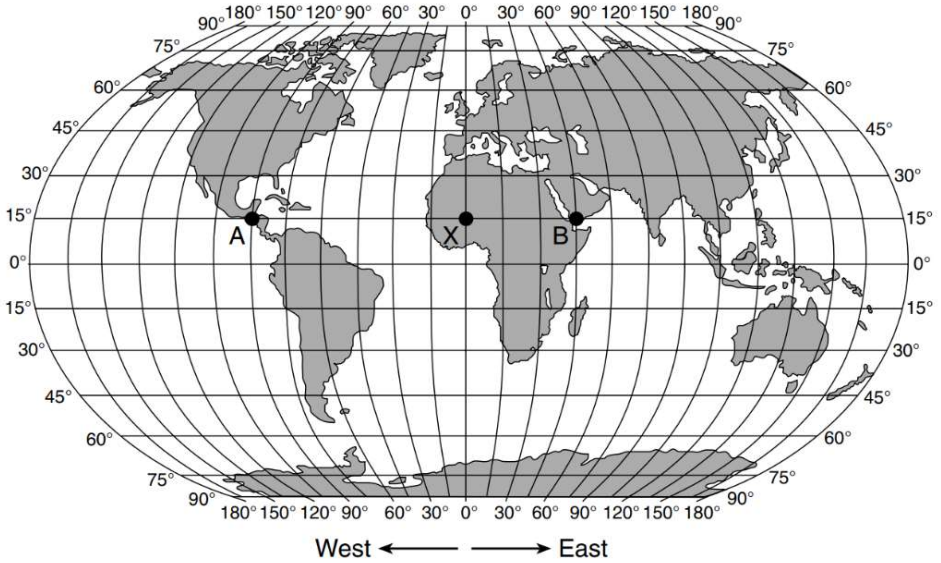


This motion of the gnomon's shadow on the sundial is mainly due to

- (1) Earth's rotation
- (2) Earth's revolution
- (3) the Sun's rotation
- (4) the Sun's revolution

6. The map below shows three locations, labeled A, X, and B, on Earth's surface.

08 18 29



Which table correctly indicates the solar times at locations A and B when it is 12 noon at location X?

Location	Solar Time
A	6 a.m.
B	9 a.m.

( 1 )

Location	Solar Time
A	6 p.m.
B	9 a.m.

( 3 )

Location	Solar Time
A	6 a.m.
B	3 p.m.

( 2 )

Location	Solar Time
A	6 p.m.
B	3 p.m.

( 4 )