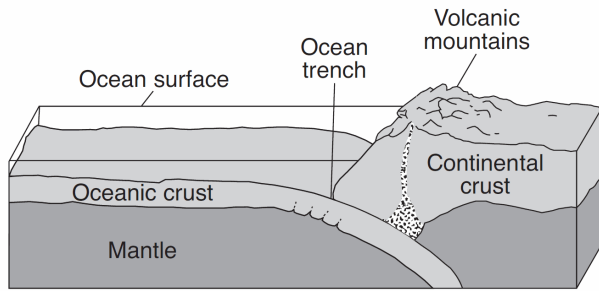


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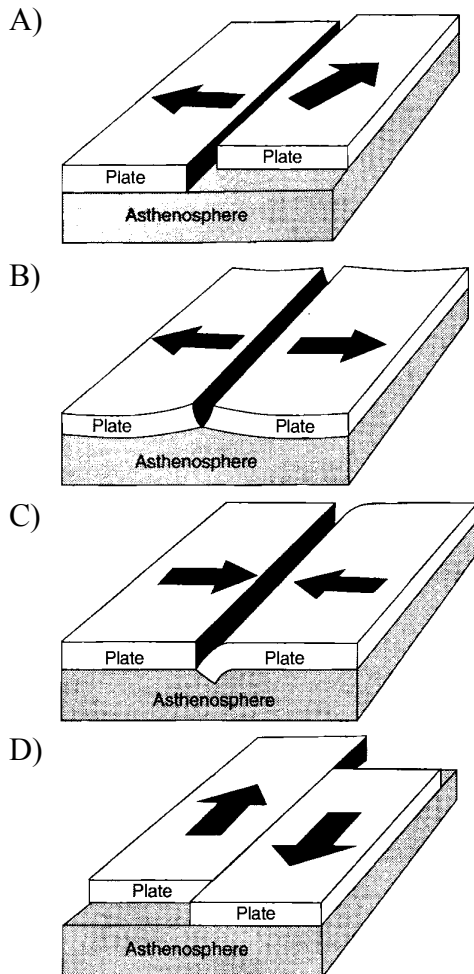
1. The block diagram below shows the boundary between two tectonic plates.



(Not drawn to scale)

Which type of plate boundary is shown?

- A) divergent B) convergent
 C) transform D) complex
2. Which block diagram best represents the relative direction of plate motion at the San Andreas Fault?



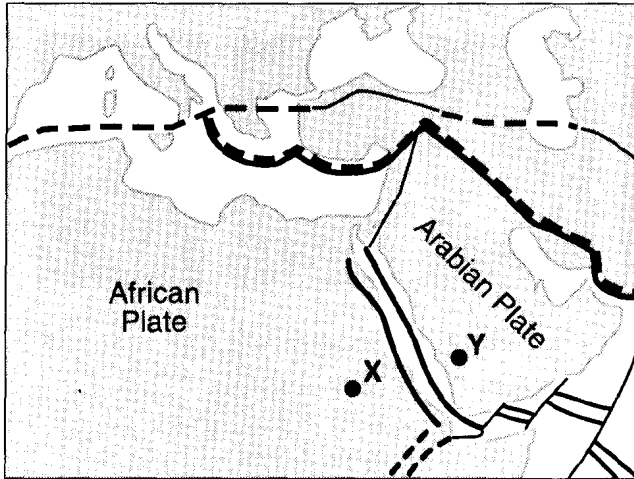
3. The Mariana Trench was most likely created by the
- A) convergence of the Pacific and Philippine Plates
 B) divergence of the Eurasian and Philippine Plates
 C) sliding of the Pacific Plate past the North American Plate
 D) movement of the Pacific Plate over the Hawaii Hot Spot
4. At which plate boundary is one lithospheric plate sliding under another?
- A) Nazca Plate and Antarctic Plate
 B) Pacific Plate and Indian-Australian Plate
 C) Indian-Australian Plate and Antarctic Plate
 D) Nazca Plate and Pacific Plate
5. When two tectonic plates collide, oceanic crust usually subducts beneath continental crust because oceanic crust is primarily composed of igneous rock that has
- A) low density and is mafic
 B) low density and is felsic
 C) high density and is mafic
 D) high density and is felsic
6. Active volcanoes are most abundant along the
- A) edges of tectonic plates
 B) eastern coastline of continents
 C) 23.5° N and 23.5° S parallels of latitude
 D) equatorial ocean floor
7. The edges of most lithospheric plates are characterized by
- A) reversed magnetic orientation
 B) unusually rapid radioactive decay
 C) frequent volcanic activity
 D) low P-wave and high S-wave velocity
8. The movement of tectonic plates is inferred by many scientists to be driven by
- A) tidal motions in the hydrosphere
 B) density differences in the troposphere
 C) convection currents in the asthenosphere
 D) solidification in the lithosphere

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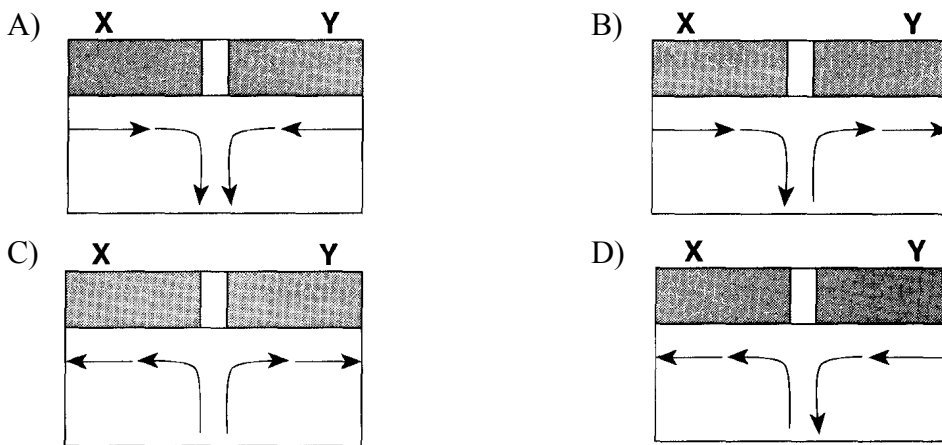
9. Which coastal area is most likely to experience a severe earthquake?

- A) east coast of North America
- B) east coast of Australia
- C) west coast of Africa
- D) west coast of South America

10. The map below shows a portion of Earth's surface. Points *X* and *Y* are locations on the lithosphere.



Which cross section shows the inferred movement of material in the asthenosphere beneath points *X* and *Y*?



11. Which observation about the Mid-Atlantic Ridge region provides the best evidence that the seafloor has been spreading for millions of years?

- A) The bedrock of the ridge and nearby seafloor is igneous rock.
- B) The ridge is the location of irregular volcanic eruptions.
- C) Several faults cut across the ridge and nearby seafloor.
- D) Seafloor bedrock is younger near the ridge and older farther away.

12. Which two tectonic plates are separated by a mid-ocean ridge?

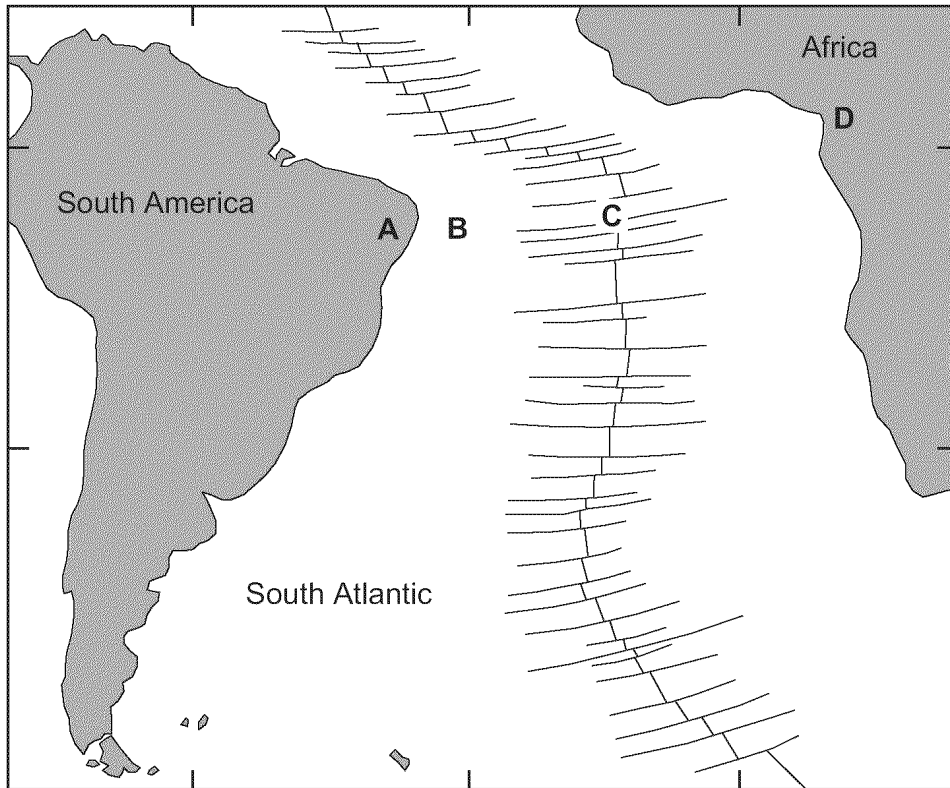
- A) Indian-Australian and Eurasian
- B) Indian-Australian and Pacific
- C) North American and South American
- D) North American and Eurasian

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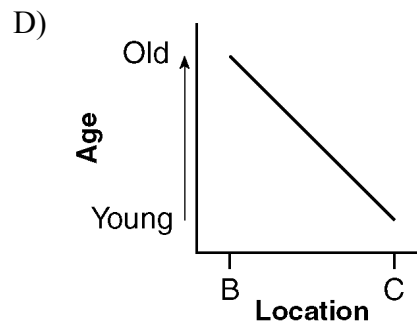
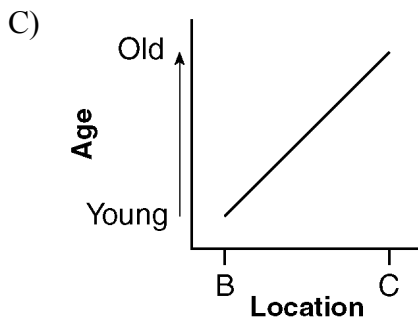
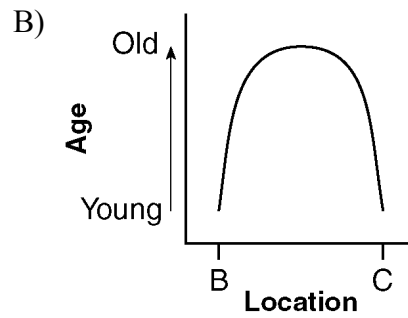
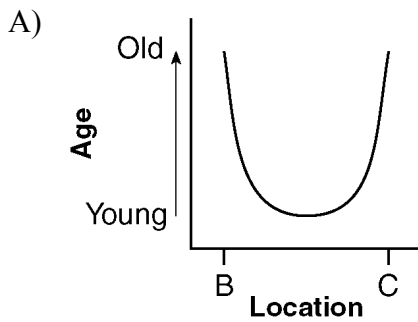
13. Convection currents in the plastic mantle are believed to cause divergence of lithospheric plates at the
- A) Peru-Chile Trench
 - B) Mariana Trench
 - C) Canary Islands Hot Spot
 - D) Iceland Hot Spot

Midterm Prep-Dynamic Crust

Base your answers to questions 14 and 15 on the map below. The map shows the continents of Africa and South America, the ocean between them, and the ocean ridge and transform faults. Locations *A* and *D* are on the continents. Locations *B* and *C* are on the ocean floor.



14. Which graph best shows the relative age of the ocean-floor bedrock from location *B* to location *C*?



15. The hottest crustal temperature measurements would most likely be found at location

A) *A*

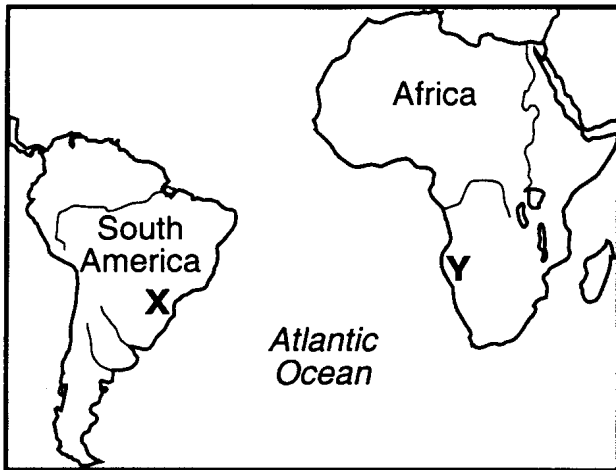
B) *B*

C) *C*

D) *D*

Midterm Prep-Dynamic Crust

16. The map below shows the present-day locations of South America and Africa. Remains of *Mesosaurus*, an extinct freshwater reptile, have been found in similarly aged bedrock formed from lake sediments at locations *X* and *Y*.

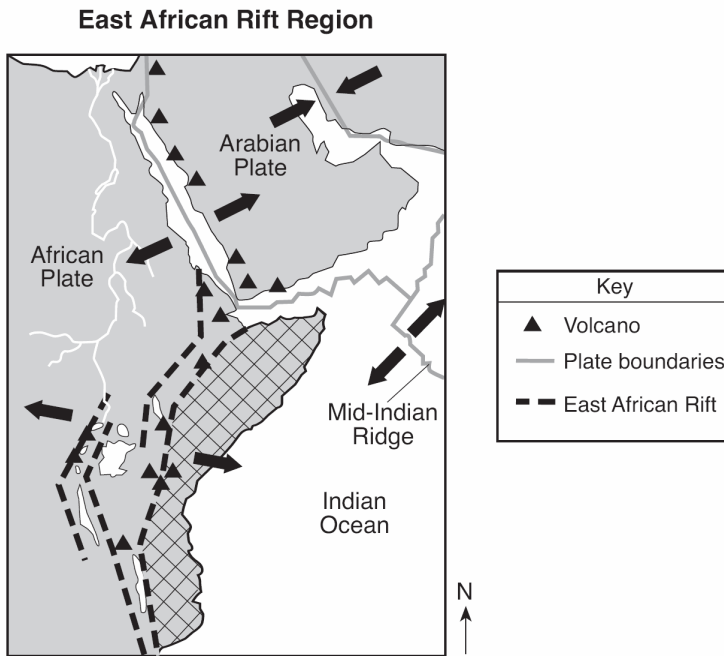


Which statement represents the most logical conclusion to draw from this evidence?

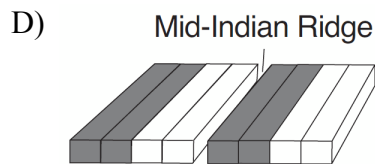
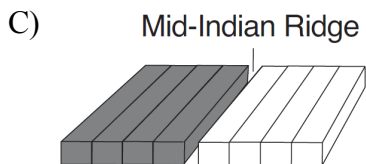
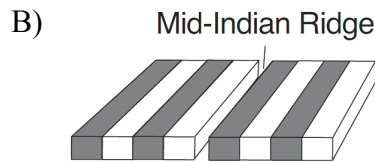
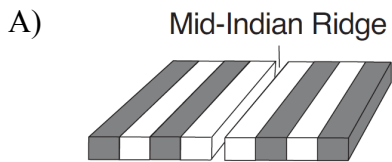
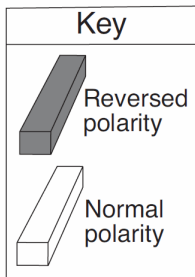
- A) *Mesosaurus* migrated across the ocean from location *X* to location *Y*.
 - B) *Mesosaurus* came into existence on several widely separated continents at different times.
 - C) The continents of South America and Africa were joined when *Mesosaurus* lived.
 - D) The present climates at locations *X* and *Y* are similar.
17. Which statement best supports the theory of continental drift?
- A) Basaltic rock is found to be progressively younger at increasing distances from a mid-ocean ridge.
 - B) Marine fossils are often found in deep-well drill cores.
 - C) The present continents appear to fit together as pieces of a larger landmass.
 - D) Areas of shallow-water seas tend to accumulate sediment, which gradually sinks.
-

Midterm Prep-Dynamic Crust

18. Base your answer to the following question on the map below, which shows the tectonic plate boundaries near the East African Rift. Arrows show relative tectonic plate movement. A region of Africa is crosshatched.

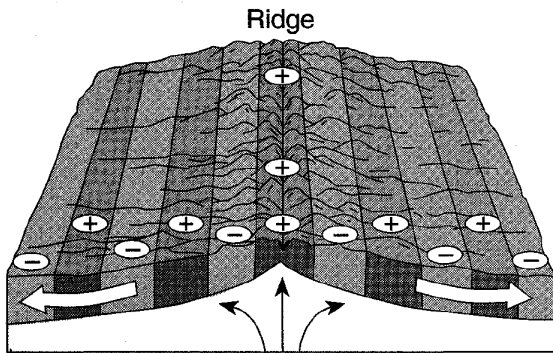


Which diagram best represents the polarity of the magnetic field preserved in the ocean-floor bedrock found on both sides of the Mid-Indian Ridge?



Midterm Prep-Dynamic Crust

19. The block diagram below represents the present ocean floor. The white arrows show the movement of the ocean floor and the black arrows show the movement of the asthenosphere.



Which characteristic of the ocean-floor bedrock is best described by the plus and minus symbols in the diagram?

- A) plus = older age; minus = younger age
 - B) plus = younger age; minus = older age
 - C) plus = reversed magnetic polarity; minus = normal magnetic polarity
 - D) plus = normal magnetic polarity; minus = reversed magnetic polarity
-
20. Which evidence supports the theory of ocean floor spreading?
- A) The rocks of the ocean floor and the continents have similar origins.
 - B) In the ocean floor, rocks near the mid-ocean ridge are cooler than rocks near the continents.
 - C) The pattern of magnetic orientation of rocks is similar on both sides of the mid-ocean ridge.
 - D) The density of oceanic crust is greater than the density of continental crust.
-