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| 1. Who proposed the theory of continental drift?

|  |  |  |
| --- | --- | --- |
|   | a.  | Charles Darwin |
|   | b.  | Harry Hess |
|   | c.  | Alfred Wegener |
|   | d.  | J. Tuzo Wilson |

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| *ANSWER:* | c |

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| 2. Which one of the following concepts was developed earliest?

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| --- | --- | --- |
|   | a.  | continental drift |
|   | b.  | plate tectonics |
|   | c.  | seafloor spreading |
|   | d.  | All three concepts were developed at approximately the same time. |

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| *ANSWER:* | a |

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| 3. How old are the fossils of the reptile *Mesosaurus* found in Africa and South America that suggest the two continents were once together?

|  |  |  |
| --- | --- | --- |
|   | a.  | approximately 100 million years |
|   | b.  | approximately 1.0 billion years |
|   | c.  | approximately 300 million years |
|   | d.  | approximately 3.0 billion years |

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| *ANSWER:* | c |

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| 4. When was the theory of plate tectonics developed?

|  |  |  |
| --- | --- | --- |
|   | a.  | 1860s |
|   | b.  | 1920s |
|   | c.  | 1940s |
|   | d.  | 1960s |

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| *ANSWER:* | d |

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| 5. New lithosphere is created

|  |  |  |
| --- | --- | --- |
|   | a.  | in deep-sea trenches. |
|   | b.  | in subduction zones. |
|   | c.  | at mid-ocean ridges. |
|   | d.  | along transform faults. |

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| *ANSWER:* | c |

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| 6. In which ocean are most of the world’s convergent plate margins located?

|  |  |  |
| --- | --- | --- |
|   | a.  | Arctic Ocean |
|   | b.  | Atlantic Ocean |
|   | c.  | Indian Ocean |
|   | d.  | Pacific Ocean |

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| *ANSWER:* | d |

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| 7. The east coast of North America is

|  |  |  |
| --- | --- | --- |
|   | a.  | a convergent plate boundary. |
|   | b.  | a transform plate boundary. |
|   | c.  | a divergent plate boundary. |
|   | d.  | not a plate boundary. |

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| *ANSWER:* | d |

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| 8. Which of the following is associated with a divergent plate boundary?

|  |  |  |
| --- | --- | --- |
|   | a.  | earthquakes |
|   | b.  | volcanism |
|   | c.  | rifting |
|   | d.  | all of the above |

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| *ANSWER:* | d |

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| 9. Which one of the following is a divergent plate boundary?

|  |  |  |
| --- | --- | --- |
|   | a.  | the Andes Mountains |
|   | b.  | the Mid-Atlantic Ridge |
|   | c.  | the Himalayan Mountains |
|   | d.  | the San Andreas fault |

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| --- | --- |
| *ANSWER:* | b |

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| 10. At what type of plate boundary do the deepest earthquakes occur?

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent |
|   | b.  | divergent |
|   | c.  | transform |
|   | d.  | All types of plate boundaries have deep earthquakes. |

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| *ANSWER:* | a |

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| 11. Approximately how deep (below sea level) are the deepest deep-sea trenches?

|  |  |  |
| --- | --- | --- |
|   | a.  | 3 km |
|   | b.  | 10 km |
|   | c.  | 30 km |
|   | d.  | 100 km |

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| *ANSWER:* | b |

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| 12. Which one of the following is not associated with convergent plate boundaries?

|  |  |  |
| --- | --- | --- |
|   | a.  | earthquakes |
|   | b.  | deep-sea trenches |
|   | c.  | spreading centers |
|   | d.  | volcanoes |

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| --- | --- |
| *ANSWER:* | c |

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| 13. Which one of the following occurs at a convergent plate boundary?

|  |  |  |
| --- | --- | --- |
|   | a.  | rifting |
|   | b.  | seafloor spreading |
|   | c.  | adding seafloor |
|   | d.  | subduction |

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| *ANSWER:* | d |

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| 14. Which one of the following mountain ranges formed as a result of ocean-continent convergence?

|  |  |  |
| --- | --- | --- |
|   | a.  | the Andes |
|   | b.  | the Appalachians |
|   | c.  | the Himalayas |
|   | d.  | the Urals |

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| --- | --- |
| *ANSWER:* | a |

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| 15. When a deep-sea trench is located next to a continent, where would you expect to find active volcanoes?

|  |  |  |
| --- | --- | --- |
|   | a.  | on the ocean side of the trench |
|   | b.  | in the deep-sea trench |
|   | c.  | on the continent side of the trench |
|   | d.  | on both the ocean side and continent side of the trench |

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| *ANSWER:* | c |

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| 16. What plate is subducting beneath southwestern Canada and the northwestern United States?

|  |  |  |
| --- | --- | --- |
|   | a.  | the Cocos Plate |
|   | b.  | the Nazca Plate |
|   | c.  | the Juan de Fuca Plate |
|   | d.  | the Pacific Plate |

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| *ANSWER:* | c |

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| 17. The west coast of South America is

|  |  |  |
| --- | --- | --- |
|   | a.  | a convergent plate boundary. |
|   | b.  | a transform-fault boundary. |
|   | c.  | a divergent plate boundary. |
|   | d.  | not a plate boundary. |

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| --- | --- |
| *ANSWER:* | a |

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| 18. Which of the following is an example of a transform plate boundary?

|  |  |  |
| --- | --- | --- |
|   | a.  | the East African Rift |
|   | b.  | the Mid-Atlantic Ridge |
|   | c.  | the Marianas Trench |
|   | d.  | the San Andreas Fault |

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| *ANSWER:* | d |

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| 19. What type of plate boundary is parallel to the direction of plate movement?

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent plate boundary |
|   | b.  | transform-fault plate boundary |
|   | c.  | divergent plate boundary |
|   | d.  | all of the above |

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| *ANSWER:* | b |

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| 20. Which one of the following mountain ranges is the product of continent-continent convergence?

|  |  |  |
| --- | --- | --- |
|   | a.  | the Andes |
|   | b.  | the Cascade Range |
|   | c.  | the Himalayas |
|   | d.  | the Japanese islands |

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| *ANSWER:* | c |

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| 21. The North American Plate is bounded by \_\_\_\_\_\_ plate boundaries.

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent |
|   | b.  | transform |
|   | c.  | divergent |
|   | d.  | convergent, divergent, and transform |

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| *ANSWER:* | d |

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| 22. Which of the following is used to determine the past rates of plate motion?

|  |  |  |
| --- | --- | --- |
|   | a.  | astronomical position of the center of the lithospheric plate |
|   | b.  | seafloor magnetic anomalies across the lithospheric plate |
|   | c.  | global positioning system used to determine the location of the center of the lithospheric plate |
|   | d.  | all of the above |

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| *ANSWER:* | b |

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| 23. Modern seafloor spreading rates range from

|  |  |  |
| --- | --- | --- |
|   | a.  | 0.2 to 1.5 millimeters per year. |
|   | b.  | 2 to 15 meters per year. |
|   | c.  | 2 to 15 centimeters per year. |
|   | d.  | 2 to 15 kilometers per year. |

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| *ANSWER:* | c |

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| 24. What two scientists related the positive and negative magnetic bands on the seafloor to seafloor spreading?

|  |  |  |
| --- | --- | --- |
|   | a.  | Charles Darwin and James Hutton |
|   | b.  | F. J. Vine and D. H. Mathews |
|   | c.  | Harry Hess and Robert Dietz |
|   | d.  | Alfred Wegener and Arthur Holmes |

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| *ANSWER:* | b |

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| 25. Which one of the following is commonly used to determine the age of seafloor samples recovered by the deep-sea drilling project?

|  |  |  |
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|   | a.  | geodetic measurements |
|   | b.  | foraminifera fossils |
|   | c.  | chemical composition |
|   | d.  | gravity measurements |

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| *ANSWER:* | b |

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| 26. Which one of the following plates is moving the fastest?

|  |  |  |
| --- | --- | --- |
|   | a.  | the African Plate |
|   | b.  | the North American Plate |
|   | c.  | the Eurasian Plate |
|   | d.  | the Pacific Plate |

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| *ANSWER:* | d |

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| 27. On a map of the seafloor, the boundaries between normally magnetized oceanic crust and reversely magnetized oceanic crust are called

|  |  |  |
| --- | --- | --- |
|   | a.  | dipoles. |
|   | b.  | isochrons. |
|   | c.  | isograds. |
|   | d.  | sutures. |

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| *ANSWER:* | b |

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| 28. When was the supercontinent of Pangaea assembled?

|  |  |  |
| --- | --- | --- |
|   | a.  | approximately 100 million years ago |
|   | b.  | approximately 1.0 billion years ago |
|   | c.  | approximately 250 million years ago |
|   | d.  | approximately 2.5 billion years ago |

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| *ANSWER:* | c |

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| 29. How old are the oldest rocks on the ocean floor?

|  |  |  |
| --- | --- | --- |
|   | a.  | approximately 20 million years old |
|   | b.  | approximately 600 million years old |
|   | c.  | approximately 200 million years old |
|   | d.  | approximately 4.0 billion years old |

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| *ANSWER:* | c |

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| 30. The oldest continental rocks are \_\_\_\_\_\_\_\_\_\_ than the oldest oceanic rocks.

|  |  |  |
| --- | --- | --- |
|   | a.  | much older |
|   | b.  | slightly older |
|   | c.  | slightly younger |
|   | d.  | much younger |

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| *ANSWER:* | a |

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| 31. Isochrons on the seafloor are roughly \_\_\_\_\_\_\_\_\_\_ the ridge axis along which they were created.

|  |  |  |
| --- | --- | --- |
|   | a.  | parallel to and symmetric about |
|   | b.  | perpendicular to and symmetric about |
|   | c.  | parallel to, but not symmetric about |
|   | d.  | perpendicular to, but not symmetric about |

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| --- | --- |
| *ANSWER:* | a |

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| 32. Why are isochrons on the Pacific seafloor more widely spaced than isochrons on the Atlantic seafloor?

|  |  |  |
| --- | --- | --- |
|   | a.  | The Pacific seafloor formed at a faster spreading rate than the Atlantic seafloor. |
|   | b.  | The Pacific seafloor formed at a slower spreading rate than the Atlantic seafloor. |
|   | c.  | The Pacific seafloor is older than the Atlantic seafloor. |
|   | d.  | The Pacific seafloor is younger than the Atlantic seafloor. |

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| *ANSWER:* | a |

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| 33. What ocean used to lie between Africa and Eurasia and was the ancestor to today’s Mediterranean Sea?

|  |  |  |
| --- | --- | --- |
|   | a.  | Gondwana |
|   | b.  | Panthalassa |
|   | c.  | Rodinia |
|   | d.  | Tethys |

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| *ANSWER:* | d |

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| 34. When did the supercontinent Pangaea begin to break apart?

|  |  |  |
| --- | --- | --- |
|   | a.  | approximately 65 million years ago |
|   | b.  | approximately 570 million years ago |
|   | c.  | approximately 200 million years ago |
|   | d.  | approximately 1.5 billion years ago |

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| *ANSWER:* | c |

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| 35. Pangaea split into two continents: Laurasia, made up of the northern continents, and \_\_\_\_\_\_, made up of the southern continents.

|  |  |  |
| --- | --- | --- |
|   | a.  | Tethys |
|   | b.  | Panthalassa |
|   | c.  | Gondwana |
|   | d.  | Cascadia |

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| *ANSWER:* | c |

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| 36. When did India begin to collide with Asia to form the Himalayas?

|  |  |  |
| --- | --- | --- |
|   | a.  | approximately 50 million years ago |
|   | b.  | approximately 500 million years ago |
|   | c.  | approximately 200 million years ago |
|   | d.  | approximately 2.0 billion years ago |

|  |  |
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| *ANSWER:* | a |

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| 37. Compared with slower moving plates, faster moving plates are bounded by a greater proportion of

|  |  |  |
| --- | --- | --- |
|   | a.  | continent collision zones. |
|   | b.  | subduction zones. |
|   | c.  | mid-ocean ridges. |
|   | d.  | transform faults. |

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| --- | --- |
| *ANSWER:* | b |

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| 38. What drives plate tectonics?

|  |  |  |
| --- | --- | --- |
|   | a.  | magnetic reversals |
|   | b.  | mantle convection |
|   | c.  | solar energy |
|   | d.  | volcanism |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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| 39. Which one of the following forces is important in driving plate tectonics?

|  |  |  |
| --- | --- | --- |
|   | a.  | the pulling force of a sinking lithospheric slab |
|   | b.  | the pushing force of a plate sliding off a mid-ocean ridge |
|   | c.  | the suction force of a retreating subduction zone |
|   | d.  | all of the above |

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| --- | --- |
| *ANSWER:* | d |

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| 40. How deep are plates subducted?

|  |  |  |
| --- | --- | --- |
|   | a.  | 100 km |
|   | b.  | 700 km |
|   | c.  | 2900 km |
|   | d.  | 6400 km |

|  |  |
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| *ANSWER:* | c |

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| 41. Regions of intense localized volcanism, such as Hawaii, form above plumes of fast-rising material that originate in the

|  |  |  |
| --- | --- | --- |
|   | a.  | crust. |
|   | b.  | deep mantle. |
|   | c.  | lithosphere. |
|   | d.  | outer core. |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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| 42. The Hawaiian volcanoes are

|  |  |  |
| --- | --- | --- |
|   | a.  | located at a convergent plate boundary. |
|   | b.  | located at a divergent plate boundary. |
|   | c.  | located at a transform plate boundary. |
|   | d.  | in the middle of a tectonic plate. |

|  |  |
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| *ANSWER:* | d |

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| 43. New oceanic crust is created at

|  |  |  |
| --- | --- | --- |
|   | a.  | subduction zones. |
|   | b.  | deep-sea trenches. |
|   | c.  | mid-ocean ridges. |
|   | d.  | transform boundaries. |

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| --- | --- |
| *ANSWER:* | c |

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| 44. Shallow focus earthquakes are associated with which type of plate boundary?

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|   | a.  | divergent |
|   | b.  | convergent |
|   | c.  | transform |
|   | d.  | all of the above |

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| --- | --- |
| *ANSWER:* | d |

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| 45. Mid-ocean ridges are also referred to as

|  |  |  |
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|   | a.  | spreading centers. |
|   | b.  | hot spots. |
|   | c.  | island arcs. |
|   | d.  | trench zones. |

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| --- | --- |
| *ANSWER:* | a |

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| 46. An island arc forms when there is \_\_\_\_\_\_\_\_\_\_ convergence.

|  |  |  |
| --- | --- | --- |
|   | a.  | ocean-continent |
|   | b.  | ocean-ocean |
|   | c.  | continent-continent |
|   | d.  | island-continent |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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| 47. The convergence of the North American Plate with the Juan de Fuca Plate forms the \_\_\_\_\_\_ subduction zone.

|  |  |  |
| --- | --- | --- |
|   | a.  | Marianas |
|   | b.  | Andean |
|   | c.  | Aleutian |
|   | d.  | Cascadia |

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| *ANSWER:* | d |

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| 48. Mount St. Helens is part of the

|  |  |  |
| --- | --- | --- |
|   | a.  | Andes Mountains. |
|   | b.  | Mid-Atlantic Ridge. |
|   | c.  | Himalayan Mountains. |
|   | d.  | Cascade Range. |

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| *ANSWER:* | d |

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| 49. The Great Rift Valley of East Africa is a

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent boundary. |
|   | b.  | divergent boundary. |
|   | c.  | transform boundary. |
|   | d.  | deep-sea trench. |

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| *ANSWER:* | b |

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| 50. The Appalachian Mountains formed from an ancient \_\_\_\_\_\_\_\_\_\_\_\_ plate boundary.

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent |
|   | b.  | transform |
|   | c.  | divergent |
|   | d.  | converform |

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| --- | --- |
| *ANSWER:* | a |

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| 51. Oceanic crust that records negative magnetic anomalies formed when the Earth’s magnetic field was

|  |  |  |
| --- | --- | --- |
|   | a.  | the same as it is today. |
|   | b.  | the same as today, except weaker. |
|   | c.  | reversed from what it is today. |
|   | d.  | the same as today, except stronger. |

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| *ANSWER:* | c |

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| 52. Geodetic positioning measures points on the Earth’s surface relative to

|  |  |  |
| --- | --- | --- |
|   | a.  | the position of Mars. |
|   | b.  | the position of known comets. |
|   | c.  | the position of the Moon. |
|   | d.  | the position of fixed stars. |

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| *ANSWER:* | d |

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| 53. If the position between antennas on two plates moving away from each other changes by 5 mm/yr, then each plate is moving at approximately

|  |  |  |
| --- | --- | --- |
|   | a.  | 5 mm/yr. |
|   | b.  | 2.5 mm/yr. |
|   | c.  | 10 mm/yr. |
|   | d.  | 1 mm/yr. |

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| *ANSWER:* | b |

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| 54. Rodinia is a supercontinent that formed

|  |  |  |
| --- | --- | --- |
|   | a.  | after Pangea. |
|   | b.  | at the same time as Pangea. |
|   | c.  | before Pangea. |
|   | d.  | Geoscientists have no idea when Rodinia was formed. |

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| *ANSWER:* | c |

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| 55. Geoscientists predict the east coast of North America will be \_\_\_\_\_\_\_\_\_\_\_\_\_ 50 million years in the future.

|  |  |  |
| --- | --- | --- |
|   | a.  | a divergent plate boundary |
|   | b.  | a transform plate boundary |
|   | c.  | a convergent plate boundary |
|   | d.  | the same as it is today |

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| *ANSWER:* | c |

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| 56. The main type of plate boundaries are (proper names only):

|  |  |  |
| --- | --- | --- |
|   | a.  | transform, sliding-past, scissor. |
|   | b.  | convergent, colliding, crumbling. |
|   | c.  | divergent, pull-apart, spreading. |
|   | d.  | convergent, transform, divergent. |

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| *ANSWER:* | d |

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| 57. What kind of plate boundary defines the eastern edge of the plate we live on in the United States?

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|   | a.  | deep sea trench |
|   | b.  | mid-ocean rift |
|   | c.  | continental spreading center |
|   | d.  | transform fault |

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| *ANSWER:* | b |

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| 58. How do we determine absolute direction of plate movement over millions of years?

|  |  |  |
| --- | --- | --- |
|   | a.  | with astronomical positioning |
|   | b.  | with the global positioning system (GPS) |
|   | c.  | with seafloor isochrons |
|   | d.  | by looking at the alignment of mountain ranges on the continents |

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| *ANSWER:* | c |

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| 59. \_\_\_\_\_\_\_\_\_\_ are the most extensive mountain ranges on Earth today.

|  |  |  |
| --- | --- | --- |
|   | a.  | The Alps |
|   | b.  | The Himalayas |
|   | c.  | The Rockies |
|   | d.  | Mid-oceanic ridges |

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| *ANSWER:* | d |

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| 60. Who first described world tectonics in terms of rigid plates?

|  |  |  |
| --- | --- | --- |
|   | a.  | Alfred Wegener |
|   | b.  | Harry Hess |
|   | c.  | Tuzo Wilson |
|   | d.  | Robert Dietz |

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| *ANSWER:* | c |

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| 61. Who first proposed the three different kinds of plate boundaries widely accepted today?

|  |  |  |
| --- | --- | --- |
|   | a.  | Tuzo Wilson |
|   | b.  | Alfred Wegener |
|   | c.  | Robert Dietz |
|   | d.  | Harry Hess |

|  |  |
| --- | --- |
| *ANSWER:* | a |

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| 62. Which of the following locations is least likely to have active volcanoes?

|  |  |  |
| --- | --- | --- |
|   | a.  | mid-oceanic ridge |
|   | b.  | continental rift valley |
|   | c.  | transform fault |
|   | d.  | island arc |

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| *ANSWER:* | c |

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| 63. How many major plates cover the Earth’s surface?

|  |  |  |
| --- | --- | --- |
|   | a.  | 2 |
|   | b.  | 5 |
|   | c.  | 13 |
|   | d.  | 30 |

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| --- | --- |
| *ANSWER:* | c |

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| 64. Which of the following plates is the largest?

|  |  |  |
| --- | --- | --- |
|   | a.  | Cocos Plate |
|   | b.  | Indian Plate |
|   | c.  | North American Plate |
|   | d.  | Pacific Plate |

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| *ANSWER:* | d |

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| 65. Which of the following plates contains only oceanic crust?

|  |  |  |
| --- | --- | --- |
|   | a.  | North Atlantic Plate |
|   | b.  | Australian Plate |
|   | c.  | Nazca Plate |
|   | d.  | African Plate |

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| --- | --- |
| *ANSWER:* | c |

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| 66. Who first suggested that the Earth’s surface might be a fragile shell resting on fluid?

|  |  |  |
| --- | --- | --- |
|   | a.  | Alfred Wegener |
|   | b.  | Harry Hess |
|   | c.  | Benjamin Franklin |
|   | d.  | Arthur Holmes |

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| *ANSWER:* | c |

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| 67. \_\_\_\_\_\_\_\_\_\_ was the first Earth scientist to propose a rudimentary form of seafloor spreading.

|  |  |  |
| --- | --- | --- |
|   | a.  | Arthur Holmes |
|   | b.  | Harry Hess |
|   | c.  | Alfred Wegener |
|   | d.  | Tuzo Wilson |

|  |  |
| --- | --- |
| *ANSWER:* | a |

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| 68. Which scientist was the first to suggest the existence of so-called “supercontinents”?

|  |  |  |
| --- | --- | --- |
|   | a.  | German Alfred Wegner |
|   | b.  | Austrian Eduard Suess |
|   | c.  | Canadian Tuzo Wilson |
|   | d.  | British Arthur Holmes |

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| --- | --- |
| *ANSWER:* | b |

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| 69. Roughly when did most Earth scientists accept plate tectonics as a theory?

|  |  |  |
| --- | --- | --- |
|   | a.  | 1960 |
|   | b.  | 1970 |
|   | c.  | 1980 |
|   | d.  | 1990 |

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| --- | --- |
| *ANSWER:* | b |

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| 70. Compared with oceanic crust the continental crust is generally lighter, \_\_\_\_ and \_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | weaker; thinner |
|   | b.  | stronger; thinner |
|   | c.  | weaker; thicker |
|   | d.  | stronger; thicker |

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| --- | --- |
| *ANSWER:* | c |

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| 71. Compared with oceanic rifts, the continental rifts generally lack

|  |  |  |
| --- | --- | --- |
|   | a.  | rift valleys. |
|   | b.  | earthquakes. |
|   | c.  | volcanic activity. |
|   | d.  | transform faults. |

|  |  |
| --- | --- |
| *ANSWER:* | d |

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| 72. Where is the best place to explore the mid-ocean ridge as it comes on land?

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| --- | --- | --- |
|   | a.  | Ireland |
|   | b.  | Iceland |
|   | c.  | Norway |
|   | d.  | Africa |

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| --- | --- |
| *ANSWER:* | b |

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| 73. Most transform-fault boundaries are typically associated with

|  |  |  |
| --- | --- | --- |
|   | a.  | subduction zones. |
|   | b.  | continental rifts. |
|   | c.  | oceanic rifts. |
|   | d.  | mountain ranges. |

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| --- | --- |
| *ANSWER:* | c |

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| 74. The North American Plate is bounded on the west with \_\_\_\_\_ boundaries and the east with \_\_\_ boundaries.

|  |  |  |
| --- | --- | --- |
|   | a.  | convergent and transform; divergent |
|   | b.  | divergent; convergent and transform |
|   | c.  | transform; convergent |
|   | d.  | divergent; transform |

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| *ANSWER:* | a |

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| 75. Deep focus earthquakes are typically associated with which type of plate boundary?

|  |  |  |
| --- | --- | --- |
|   | a.  | divergent |
|   | b.  | convergent |
|   | c.  | transform |
|   | d.  | all of the boundaries |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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| 76. Which type of measurements initially led to determining the rate of plate movement with a high degree of accuracy?

|  |  |  |
| --- | --- | --- |
|   | a.  | geodesy |
|   | b.  | astronomical positioning |
|   | c.  | radio telescopes |
|   | d.  | GPS |

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| --- | --- |
| *ANSWER:* | c |

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| 77. Which type of measurements are currently used to determine the rate of plate movement with a high degree of accuracy?

|  |  |  |
| --- | --- | --- |
|   | a.  | geodesy |
|   | b.  | astronomical positioning |
|   | c.  | radio telescopes |
|   | d.  | GPS |

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| --- | --- |
| *ANSWER:* | d |

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| 78. The width of seafloor isochrons is directly related to

|  |  |  |
| --- | --- | --- |
|   | a.  | their distance from a mid-ocean ridge. |
|   | b.  | their age. |
|   | c.  | spreading rate. |
|   | d.  | the frequency of magnetic reversals. |

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| *ANSWER:* | c |

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| 79. Given the current plate configuration, we would expect the distance between which of the following cites to increase?

|  |  |  |
| --- | --- | --- |
|   | a.  | Los Angles and New York |
|   | b.  | New York and London |
|   | c.  | London and Moscow |
|   | d.  | Honolulu and Tokyo |

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| --- | --- |
| *ANSWER:* | b |

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| 80. Roughly how long has the North American Plate been around?

|  |  |  |
| --- | --- | --- |
|   | a.  | 6 thousand years |
|   | b.  | 6 million years |
|   | c.  | 60 million years |
|   | d.  | 600 million years |

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| --- | --- |
| *ANSWER:* | c |

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| 81. Assuming that the direction and rates of plate movement will remain constant for the next 50 million years, how will the distance between London and New York change?

|  |  |  |
| --- | --- | --- |
|   | a.  | It will remain the same. |
|   | b.  | It will decrease. |
|   | c.  | It will increase. |
|   | d.  | It is impossible to predict. |

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| --- | --- |
| *ANSWER:* | c |

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| 82. What is not possible to explain with the theory of plate tectonics?

|  |  |  |
| --- | --- | --- |
|   | a.  | where volcanoes erupt |
|   | b.  | where earthquakes occur |
|   | c.  | the phases of the moon |
|   | d.  | the locations of mountains |

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| --- | --- |
| *ANSWER:* | c |

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| 83. What was not used by Wegner to propose the existence of Pangea?

|  |  |  |
| --- | --- | --- |
|   | a.  | the distribution of Mesosaurus |
|   | b.  | seafloor spreading |
|   | c.  | matching rock assemblages |
|   | d.  | the close fit of the continents |

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| --- | --- |
| *ANSWER:* | b |

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| 84. Marie Tharp contributed to the revolutionary theory of plate tectonics by

|  |  |  |
| --- | --- | --- |
|   | a.  | mapping the seafloor. |
|   | b.  | showing that the ocean floor is made mostly of basalt. |
|   | c.  | showing that the ocean floor is made mostly of granite. |
|   | d.  | describing the process of seafloor spreading. |

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| *ANSWER:* | a |

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| 85. What is the Ring of Fire?

|  |  |  |
| --- | --- | --- |
|   | a.  | a region of intense volcanic activity around the Pacific Ocean |
|   | b.  | a region of earthquake activity around the Pacific Ocean |
|   | c.  | the heating of Antarctica due to the creation of the ozone hole |
|   | d.  | evidence that the seafloor is being recycled |

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| --- | --- |
| *ANSWER:* | d |

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| 86. A reasonable rate of motion of across the western boundary of the South American Plate is

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|   | a.  | 73 mm/y. |
|   | b.  | 73 in/y. |
|   | c.  | 73 ft /y. |
|   | d.  | 73 km/y. |

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| *ANSWER:* | a |

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| 87. Any given plate has the same kind of plate boundary (divergent, convergent, or transform) all around it.

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|   | a.  | True |
|   | b.  | False |

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| *ANSWER:* | False |

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| 88. A volcanic arc is associated with subduction

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|   | a.  | of a mid-ocean ridge. |
|   | b.  | at a rift zone. |
|   | c.  | at an ocean-ocean convergent plate boundary. |
|   | d.  | at an ocean-continental convergent plate boundary. |

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| *ANSWER:* | d |

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| 89. The breakup of Pangea was likely begun with the formation of a

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|   | a.  | a mid-ocean ridge. |
|   | b.  | a rift valley. |
|   | c.  | an island arc. |
|   | d.  | a subduction zone. |

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| *ANSWER:* | b |

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| 90. The magnetic time scale shows geologists that

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|   | a.  | the North magnetic pole has always been at the North Pole. |
|   | b.  | the South magnetic pole has shifted to the North magnetic pole only over the last 5 million years. |
|   | c.  | the Earth’s magnetic field changes about every 200,000 years. |
|   | d.  | volcanoes have erupted every 200,000 years. |

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| *ANSWER:* | c |

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| 91. Seafloor spreading was explained by

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|   | a.  | measuring the increasing width of the ocean basins. |
|   | b.  | measuring the age of the seafloor at various known locations. |
|   | c.  | recording high and low magnetic field strength variations in the rocks on the seafloor. |
|   | d.  | observing mantle plumes, like Hawaii. |

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| *ANSWER:* | b |

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| 92. What are the two pieces of information needed to determine the age of the seafloor?

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|   | a.  | the magnetic field anomaly and the kind of the nearest plate tectonic boundary |
|   | b.  | the magnetic field anomaly and the geodetic position of the plate |
|   | c.  | the precise location of the center of the lithospheric plate and the kind of the nearest plate tectonic boundary |
|   | d.  | the magnetic field anomaly and the geologic ages of several known places on the seafloor |

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| *ANSWER:* | d |

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| 93. The ocean floor age, as shown by isochrons, is only as old as Pangea because during the rest of the history of the Earth going back to 4.6 billion years,

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|   | a.  | the ocean floor was consumed at subduction zones. |
|   | b.  | the ocean floor was only created at subduction zones. |
|   | c.  | the rest of the ocean floor was metamorphosed to mountain chains. |
|   | d.  | geodetic measurements of the ocean floor only extend to 280 million years. |

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| *ANSWER:* | a |

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| 94. Isochrons on the seafloor are parallel to

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|   | a.  | magnetic anomalies on the seafloor. |
|   | b.  | hot-spot trails on the seafloor. |
|   | c.  | transform plate boundaries. |
|   | d.  | rift zones on the continent. |

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| *ANSWER:* | a |

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| 95. What is not possible to interpret, using plate tectonics?

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|   | a.  | global warming |
|   | b.  | climate change |
|   | c.  | rock formation |
|   | d.  | mountain building |

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| *ANSWER:* | a |

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