Note: Whenever you see reference to *Tarbuck,* in the following questions, that means the eText of the textbook by Tarbuck and others, **Earth**

1. What do we call a plate boundary in which the two plates along the boundary are moving away from each other?
2. What do we call a plate boundary in which the two plates along the boundary are moving toward each other?
3. What do we call a plate boundary in which the two plates along (*i.e.*, roughly paralel to) the boundary are moving along their common boundary?
4. What do we call the outer layer of the solid Earth — the layer that includes the crust and the strong uppermost part of the upper mantle?
5. The strong outer layer of the solid Earth is made-up of many pieces that resemble the pieces of a broken eggshell, and each piece is moving horizontally in a different direction than the pieces that surround it. What do we call these pieces?
6. These pieces of Earth's strong outer layer are able to move across a weaker part of the upper mantle that is just below the strong outer layer. What is that weak layer called?
7. The axial rift valley of a mid-ocean ridge is an example of what kind of plate boundary?
8. A subduction zone is an example of what kind of plate boundary?
9. Where two different continental plates (plates topped with continental crust) converge, what sort of feature would you expect to form on Earth's surface along the plate boundary?
10. There are several places on Earth's surface where there is a chain of active volcanoes (*i.e.*, volcanoes that have erupted within the past several hundred years) that is parallel to an ocean coastline. Sometimes these volcanoes form a chain of islands (called an island arc) and sometimes they are located along the edge of a continent (a continental arc). What sort of plate boundary is indicated by the presence of either an island arc or a continental arc of active volcanoes?
11. In terms of plate tectonics, what is the cause of volcanism along an island arc or continental arc?
12. There are several places on Earth's surface where there is a chain of volcanoes or volcanic centers along which the age of the volcanism varies systematically, from the youngest volcano at one end of the chain to the oldest volcano at the other end of the chain. The Hawaiian Islands chain is one example. What is the cause of the volcanism along this kind of volcanic chain?
13. The volcanoes of the Hawaiian Islands chain are on the Pacific Plate. These volcanoes are youngest toward the big island of Hawaii — the southeast end of the chain — and oldest toward the smaller islands and submerged seamounts that extend to the northwest. What direction is the Pacific Plate moving relative to the source of heat in the mantle that is responsible for the volcanism?
14. Where in an ocean basin is new oceanic lithosphere generated?
15. Along what kind of plate boundary is oceanic lithosphere formed?
16. If new oceanic lithosphere is constantly forming and we know Earth is not expanding, where (*i.e.*, along what kind of plate boundary) is oceanic lithosphere being consumed?
17. Which tends to be thicker: continental crust or oceanic crust?
18. On average, which tends to be denser: continental crust or oceanic crust?
19. Which of Earth's lithospheric plates does Waco, Texas, sit on?
20. Which of Earth's lithospheric plates does San Diego, California, sit on?
21. Some plates, like the North American Plate, include both continental crust and oceanic crust. Where is the eastern edge of the North American Plate, at around the latitude of Washington DC?
22. What is the plate next to the North American Plate to the east, at around the latitude of Washington DC?
23. What is the plate just west of the North American Plate across the plate boundary in southern California?
24. What is the plate just west of the North American Plate across the plate boundary in Oregon and Washington?
25. Why is a map showing the locations of the foci (hypocenters) of large numbers of earthquakes (*e.g.*, *Tarbuck* Fig. 11.30) useful to us in recognizing plate boundaries?
26. Why is a map showing the locations of all of the active volcanoes on Earth (*e.g.*, *Tarbuck*, Figs. 5.28 and 2.29) useful to us in recognizing plate boundaries?
27. How does the age of the lithosphere vary with increasing distance from a mid-ocean ridge?
28. How does the depth to the seafloor vary with increasing distance from a mid-ocean ridge?
29. How does the thickness of the lithosphere vary with increasing distance from a mid-ocean ridge?
30. What is the most energetic/effective mechanism that we know of that can move a plate?
    Hint: Imagine a plate that is subducting under an adjacent plate, has a boundary with a second other plate along a mid-ocean ridge, and is the upper plate under which a third other plate is subducting — that is, this plate is subject to slab pull, ridge push, and trench pull. Which of these three mechanisms is likely to be most important in moving the plate?