Unit B Chapter 1 Section Review Questions

Section 1.1

1. Hot, dense, solid inner core. Hot, liquid outer core. Thick mantle of heated rock. Thin, rigid crust.
2. Lithosphere: made up of the rigid crust and very top part of the mantle. Asthenosphere: weaker, softer rock just below the lithosphere
3. They have both thinner oceanic crust and thicker continental crust.
4. Thickest under the mountains because the crust is thickest on the continents
5. There would be low plains and valleys surrounding all continents because that part of the crust uncovered by oceans is thinner and lower than the continental crust
6. If Earth’s crust was all in one piece, the continents could not move. But since the crust is made up of many plates, the plates might be able to move separately.

Section 1.2

1. Ancient climate clues that showed continents had once been in different locations; the same rock layers and fossils appeared on two widely separated continents
2. Sea floor spreading, different ages of sea floor rock, mid ocean trenches
3. Circulation of heated and cooling material forms convection currents that can carry tectonic plates
4. The oceanic crust is sinking into trenches, but at the same time, the sea floor is spreading. Both happen at the same rate, so Earth stays the same size
5. Biologists and oceanographers
6. Because of sea floor spreading the Atlantic Ocean is getting wider; the Pacific Ocean must be getting narrower because the size of the Earth stays roughly the same.

Section 1.3

1. Divergent, moving apart; convergent, pushing together; transform, scraping past
2. Oceanic: mid-ocean ridges, rift valleys, new crust; Continental: rift valleys, volcanoes, new crust
3. Provide a fixed point to measure speed and motion of plate above
4. The magnetic minerals in the new rocks would be aligned in the opposite direction
5. The Mid-Atlantic Ridge is a divergent boundary, so the island would be pulling apart into two sections
6. If melted rock rising through the crust builds islands or landforms, then a larger island or landform would have to be over the hot spot because it would need more time to acquire material before being carried away

Section 1.4

1. Where two continental plates meet, two oceanic plates meet, an oceanic and continental plate meet
2. Two plates move past each other in opposite directions
3. Gives geologists a new way to explain past and future geologic events; helps geologists understand why major geologic events happen along plate boundaries
4. Compare: both form trenches; Contrast: oceanic-oceanic form volcanic islands, oceanic-continental form coastal mountains and volcanoes
5. South American and Nazca plates; convergent boundary
6. Should show a trench formed where the oceanic plate sinks under the continental plate, coastal mountains and volcanoes, and two inland plates scarping against each, moving in opposite directions