Putting Things Together

1. What type of crust makes up the region marked 1 on the map?
2. Approximately how much of the earth is made up of the same type of crust?
3. What are the regions labeled 1 called?
4. What type of crust dominates the region labeled 2?
5. Approximately how much of the earth is made up of the same type of crust?
6. What are the regions labeled 2 called?
7. What is the density of the crust in region 1?
8. What is the density of the crust in region 2?
9. Given you answers to questions 7&8, which one is more likely to sink relative to the other?
10. Which focal mechanism map is correct for the regions labeled 3?
11. What type of stress generates the focal mechanism map in region 3?
12. Assume that the earthquakes in region 3 trace the fault line. Draw arrows on either side of the fault line for one of these regions indicating the relative sense of motion associated with the stress that generated the earthquake.
13. What type of stress generates the focal mechanism map in region 4?
14. Assume that the earthquakes in region 4 trace the fault line. Draw arrows on either side of the fault line for one of these regions indicating the relative sense of motion associated with the stress that generated the earthquake.
15. In terms of focal depth, do you notice any difference between the earthquakes in region 3 and region 4?
16. Using South America as an example, what types of earthquakes dominate the west coast?
17. What about the east coast of south America?
18. In general what happens to the focal depth as you move from the west coastline of South America toward the east?
19. Sketch this relationship in a crude manner below…
20. Given your answers to questions 9, 13 and 14, what do you think this seismic activity represents?

21. What is the name of the mountain chain along the west coast of South America?

22. Given your answers in questions 1, 6 and 20 and your knowledge of those rock types, what type of magmatism do you expect to see in these mountains? Explain your answer.

23. Note that the region occupied by the Marianas trench shows a similar pattern of earthquakes yet there is no continent nearby. What do you think is the cause of this pattern (Hint: think about density)
24. Note that the region occupied by the Himalayas shows a pattern of deeper earthquakes with a focal mechanism associated similar to that beneath South America yet there is no oceanic crust. What do you think is the cause of this pattern?

25. Given your answers in 21 and 22, why is the Marianas trench the deepest location on the earth’s surface and the Himalayas mark the highest location?

26. Region 5 is the San Andreas Fault line, what type of focal mechanism should you draw here?