1. (10 points) New Jersey and Alaska have populations of 8.7 million and 680,000, respectively. Their areas are 7417 and 571,951 square miles, respectively. Compute the population densities of both states.

2. (10 points) **Blood Alcohol Content: Hard Liquor.** Eight ounces of a hard liquor (such as whiskey) typically contain about 70 grams of alcohol. Consider a 200-pound man, with approximately 6 liters of blood, who quickly drinks 8 ounces of hard liquor.

   (a). If all the alcohol were immediately absorbed into his bloodstream, what would his blood alcohol content be? Explain why it is fortunate that, in reality, the alcohol is not absorbed immediately.

   (b). Again assume that all the alcohol is absorbed immediately, but now assume that his body eliminates the alcohol (through metabolism) at a rate of 15 grams per hour. What is his blood alcohol content 4 hours after drinking the liquor? Is it safe for him to drive at this time? Explain.

   \[1 \text{ oz} = 437.5 \text{ grains}, \ 1 \text{ grain} = 0.0648 \text{ gram}\]