**Moles Quiz – Honors**

Answer the following mole-related questions. Show your work for partial credit!

1. In a colony of naked mole rats, the queen is the largest, weighing about 71 grams. At a mole rat convention in Las Vegas, 83 queens got together to see some magic at the luxurious Bellagio Hotel and Casino. At the show, the magician made them into statues the same weight as the rats themselves.
2. What is the combined weight of all of the little statues? (1 pt)
3. How many moles of gold does this represent? (5 pt)
4. Give a reason why mole rats might have a convention in Las Vegas. (1 pt)
5. In 1995, popcorn superstar Orville Redenbacher drowned in his Jacuzzi. Assuming that his Jacuzzi had a volume of 1900 liters and that the density of water is 1.0 g/mL. Given this information:
6. How many grams of water did Orville Redenbacher drown in? (1 pt)
7. How many moles of water did Orville Redenbacher drown in? (5 pt)
8. Define the word “mole” (1 pt):
9. A pair of scissors contains 45 moles of iron. How many grams of iron is this? (5 pt)
10. Given your answer from #4, would you say that this is a normal pair of scissors that you’d be likely to see in a stationary store? Why or why not? (2 pt)
11. When I answered one of Mr. Guch’s weird mole questions, I found that there are 1.5 moles of water in the Indian Ocean. Is this answer reasonable? Explain why it either is or isn’t. (5 pt)