Math 290-Number Theory for Teachers
Problem of the Day #13
Due Wednesday, February 26, 2014

1. How many different values are there for $\sqrt[3]{1}$ in $\mathbb{Z}_7$? What about $\mathbb{Z}_{11}$? $\mathbb{Z}_{13}$? Solve at least two of these using logarithms. What congruences of the exponents do you have to solve?

2. Can you predict the number of values for $\sqrt[3]{1}$ in $\mathbb{Z}_{29}$ and $\mathbb{Z}_{31}$?