Benford's Law

Consider the values of $(2.04)^n$ for $n = 0, 1, 2, \ldots$. An exponential function like this one can represent the growth of a bank account, a population, etc. Benford's law says that the leading digits of the sequence $(2.04)^0, (2.04)^1, (2.04)^2, \ldots$ **do not** all occur with the same chance.

Examples:

Number	Decimal Representation	Leading Digit
$(2.04)^0$	1	1
$(2.04)^1$	2.04	2
$(2.04)^2$	$4.161\ldots$	4
$(2.04)^3$	$8.489\ldots$	8
$(2.04)^4$	$17.318\ldots$	1

Goal:

1. Write a function `firstDigit(n)` that, given a number n (not necessarily an integer), returns the leading digit of n. (Hint: Convert n to a string, find the desired digit, and convert the digit back into an integer.)

2. Use your function from part 1 to construct a histogram of the leading digits of the sequence $(2.04)^n$ for $n = 0, 1, 2, \ldots, 100$.

3. Construct a histogram of the leading digits of a randomly generated sequence of length 100 and compare it to your result from part 2.