COS109 HW1

1. In and Out
   a) Assume x students, and each student use y times per day, then 7xy.
   b) Any method that is reasonable is ok. For example,
      Student ID: 9 bytes
      Entry/Room: e.g.: CS303, PHYS104 -> 8 bytes
      Date: yyyyMMdd -> 8 bytes
      Time: hhmmss -> 6 bytes
      Total -> 9+8+8+6 = 31 bytes.
   c) Any method that is reasonable. For example, group transactions by date/students.
   d) Assume x students each year, each student swipes y times per day, 28 weeks/academic year, each transaction takes z bytes. Then the answer is 7xy swipes/week * 28 weeks/academic year * 273 academic years * z bytes/swipe.
   e) Assume 1.5 GB/picture. Then 7y * 28 * 1.5.

2. On the street where you live
   a) Assume the size to be 3000 mi * 1500 mi. Then the road length is 2*(3000*1500).
   b) Assume gas price per mile to be $0.13. Then 2*(3000*1500) * 0.13.
   c) 1 mile = 5280 foot.
      Then the answer is 2*(3000*1500) * 5280 / 0.3 * (1.5GB/Photo)
   d) Any answer that is reasonable.

3. Gadget Numbers
   a) 256 GB.
   b) 16 GB.
   c) 2560 pixels * 1600 pixels = 4.1 * 10^6 pixels.
   d) Laptop screen area is roughly 120 in^2
Phone screen area is roughly 20 in^2
The pixels in phone = 20/120 * 4.1 * 10^6