Math 464/564, O. Knill, **February 1997**

Large numbers and small probabilities

10^4	A "myriad". The largest numbers, the greeks were considering.
10^5	The largest number considered by the romans.
10^{10}	The age of the universe in years.
10^{22}	Distance to our neighbour galaxie Andromeda in meters.
10^{23}	Number of atoms in two gram Carbon (Avogadro).
10^{26}	Size of universe in meters.
10^{41}	Mass of our home galaxy "milky way" in kg.
10^{51}	Archimedes (300 A.D.) estimeate of the number of sand grains in the universe.
10^{52}	Mass of our universe in kg.
10^{80}	The number of atoms in our universe.
10^{100}	One "googol". (Name by 9 year old nephew of the mathematician E. Kasner).
10^{153}	Number mentiond in a myth about Buddha.
10^{155}	Size of the ninth Fermat number (factored in 1990).
$2^{1'398'269} - 1$	Largest known prime number (This Mersenne number was found in November 1996).
10^{10^7}	Years for a parrot to write "the hound of Baskerville" by random typing.
$1 : 10^{10^{33}}$	The odds that a can of beer tips due to quantum fluctuations (Richard Crandall)
$1 : 10^{10^{42}}$	Probability that a mouse survives on the the sun for a week (John Littlewood).
$1 : 10^{10^{51}}$	Odds for finding yourself on Mars reassembled by quantum fluctuations (R. Crandall).
$10^{10^{100}}$	One "gogoolplex", does not exist in decimal expansion in our universe.

See the recent article of R.E. Crandall in

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