

**Undergraduate Colloquium in Mathematics**  
**Wednesday, April 4<sup>th</sup>, 3:00 PM – 4:00 PM**  
**STV 346**

**Basic Stuff**

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Abstract: Human physiology and electrical circuits have a lot to do with the popularity of the decimal and binary number systems (bases 10 and 2 respectively). Then why did the Soviets bother to build ternary (base-3) computers? Does radix economy have anything to do with the cultivation and marketing of root vegetables? What is Knuth's complex base  $2i$  good for (for extra credit, what is Knuth's most important contribution to the dissemination of mathematics?) How come polynomials with integer coefficients have a unique base- $x$  representation, and why is this important for factorization? Can one make computers out of Tinker Toy pieces? And do you realize that choices on phone menus are grouped for maximum annoyance, when there is a better method? (If you want an incompetent person to waste your time, please press 1... If you want to hear that we are closed, please press 2...) We will discuss these basic concepts that prop up our so-called civilization. This talk is not for the faint-hearted: a deep knowledge of addition and multiplication of integers is required to attend.

1	11	21	23	2	22	14	19	4	23	21	31	8	13	26	27	16	31	26	27
15	5	7	13	26	15	30	7	13	22	29	7	14	25	30	11	28	25	19	23
9	19	3	27	18	27	10	31	12	5	20	14	9	29	12	31	24	18	29	21
31	25	17	29	3	23	11	6	30	6	28	15	24	10	28	15	20	22	17	30