

Chain Letter (each receiving person sending out 2 copies the next week)

Week #	# of letters sent that week	Total letters sent	Who to send to:
1	1	1	I write the letter
2	2	3	2 money hungry juniors
3	4	7	Close friends in the class
4	8	15	Others in the class
5	16	31	Everyone in the class & a few others
6	32	63	Seniors next door
7	64	127	2 more classes
8	128	255	4 more classes
9	256	511	Whole junior class
10	512	1,023	Whole senior class
11	1,024	2,047	Whole school
12	2,048	4,095	WNHS
13	4,096	8,191	NCHS & NNHS
14	8,192	16,383	GE GW GN GS HS's
15	16,384	32,767	St.Charles, Elgin, WV, NV HS's etc
16	32,768	65,535	Warrenville
17	65,536	131,071	Wheaton
18	131,072	262,143	Naperville
19	262,144	524,287	DuPage County
20	524,288	1,048,575	West Suburbs
21	1,048,576	2,097,151	N & S Suburbs
22	2,097,152	4,194,303	Chicago
23	4,194,304	8,388,607	Northern IL.
24	8,388,608	16,777,215	Rest of IL.
25	16,777,216	33,554,431	Wis 5m, Ind 5.7m, Iowa 2.8m, Kent. 3.8m
26	33,554,432	67,108,863	Midwest
27	67,108,864	134,217,727	East
28	134,217,728	268,435,455	Rest of country
29	268,435,456	536,870,911	N & S America (Canada 28m, Mexico 93m)
30	536,870,912	1,073,741,823	Europe
31	1,073,741,824	2,147,483,647	China
32	2,147,483,648	4,294,967,295	Rest of world
33	4,294,967,296	8,589,934,591	Mars & other aliens

ex.1) To find the # sent during the 5th week:

$$a_5 = 1(2^{5-1}) = 16 = 31$$

Graphing:

$$a_n = 1(2^{x-1})$$

$$\Rightarrow y = (2^{x-1})$$

To find the total # sent for the first 5 weeks:

$$S_5 = \frac{1 - 1(2^5)}{1 - 2}$$

$$S_n = \frac{1 - 1(2^x)}{1 - 2}$$

$$y = -1 + (2^x)$$

TI83 settings: x [-0.6 , 37] Xscl 5; y [-2500000000 , 9000000000] Yscl 0