

x = 2388 (for DOG):

i	b_i		z
-----			
0	1	$1^2 * 2388$	2388
1	0	$2388^2$	3578
2	0	$3578^2$	26380
3	1	$26380^2 * 2388$	393
4	1	$393^2 * 2388$	19698
5	0	$19698^2$	11821
6	0	$11821^2$	17435
7	1	$17435^2 * 2388$	8167
8	1	$8167^2 * 2388$	30153
9	0	$30153^2$	30454
10	0	$30454^2$	17682
11	0	$17682^2$	24132
12	1	$24132^2 * 2388$	15407
$2388^{4913} \bmod 31313 = 15407$			

x = 1371 (for CAT):

i	b_i		z
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0	1	$1^2 * 1371$	1371
1	0	$1371^2$	861
2	0	$861^2$	21122
3	1	$21122^2 * 1371$	10339
4	1	$10339^2 * 1371$	17937
5	0	$17937^2$	26207
6	0	$26207^2$	18820
7	1	$18820^2 * 1371$	3655
8	1	$3655^2 * 1371$	30384
9	0	$30384^2$	17590
10	0	$17590^2$	4347
11	0	$4347^2$	14670
12	1	$14670^2 * 1371$	25076
$1371^{4913} \bmod 31313 = 25076$			