

Nim's Game

This program is a calculator version of Nim's game. The object of the game is to force your opponent to take the last match. You may initially specify the number of matches in the pile, the maximum number of matches that can be taken from the pile in any one go. There is also a choice of going first or second.

After some matches have been taken from the pile, you are told the number left. The calculator then makes its move. Zero and numbers greater than the maximum specified are illegal moves and the player will be requested to re-input the number of matches to be taken away from the pile. Negative numbers are treated as positive ones and fractions are truncated.

The program, in its present form, can only be run on a Texan TI59 calculator with printer because of the large number of memories used. If the printer were not used, the number of registers used could be reduced to 5 (00 - 04), but then parts of the program dealing with the printer would have to be omitted. This should cause no problem as there is no absolute addressing in the program. Once the program and date constant have been entered, it is advisable to put them onto magnetic cards (2 required) to save having to type the date again.

To start the program press 'A' for a header on the printer, otherwise 'B'. Then after each number is entered, press 'R/S', and the number is accepted and printed on the printer. In response to the question 'FIRST', a reply of 0 (nought) instructs the calculator to make the first move, any other number enables the player to go first.

PROGRAM LISTING

000	76	LBL	025	00	00	078	29	CP	103	43	RCL
001	11	A	026	99	PRT	079	67	EQ	104	01	01
002	05	5	027	76	LBL	080	28	LDG	105	32	X:T
003	71	SBR	028	42	STD	081	22	INV	106	43	RCL
004	97	DSZ	029	02	2	082	44	SUM	107	00	00
005	09	9	030	01	1	083	00	00	108	75	-
006	71	SBR	031	71	SBR	084	03	3	109	43	RCL
007	97	DSZ	032	97	DSZ	085	03	3	110	54	54
008	01	1	033	43	RCL	086	71	SBR	111	75	-
009	03	3	034	00	00	087	97	DSZ	112	01	1
010	71	SBR	035	32	X:T	088	02	2	113	95	=
011	97	DSZ	036	91	R/S	089	32	X:T	114	22	INV
012	98	ADV	037	59	INT	090	43	RCL	115	77	GE
013	98	ADV	038	50	I×I	091	00	00	116	25	CLR
014	98	ADV	039	42	STD	092	99	PRT	117	43	RCL
015	76	LBL	040	01	01	093	22	INV	118	01	01
016	12	B	041	99	PRT	094	77	GE	119	85	+
017	01	1	042	77	GE	095	24	CE	120	01	1
018	07	7	043	42	STD	096	76	LBL	121	95	=
019	71	SBR	044	02	2	097	23	LNK	122	44	SUM
020	97	DSZ	045	05	5	098	01	1	123	54	54
021	91	R/S	046	71	SBR	099	42	STD	124	43	RCL
022	59	INT	047	97	DSZ	100	54	54	125	54	54
023	50	I×I	048	91	R/S	101	76	LBL	126	32	X:T
024	42	STD	049	59	INT	102	35	1/X	127	43	RCL
									128	00	00
									129	77	GE
									130	35	1/X
									131	76	LBL
									132	25	CLR
									133	43	RCL
									134	54	54
									135	32	X:T
									136	43	RCL
									137	00	00
									138	67	EQ
									139	34	FX
									140	75	-
									141	43	RCL
									142	54	54
									143	95	=
									144	42	STD
									145	53	53
									146	29	CP
									147	43	RCL
									148	53	53
									149	22	INV
									150	67	EQ
									151	33	X²
									152	76	LBL
									153	34	FX
									154	02	2
									155	42	STD

SOFTSPOT

156	53	53	200	42	STD	1330003327.	07	SAMPLE GAMES
157	76	LBL	201	03	03	1345360000.	08	THIS PROGRAM
158	33	X²	202	05	5	3124303036.	09	PLAYS
159	03	3	203	32	XIT	2213301700.	10	NINMSGAME
160	07	7	204	01	1	0.	11	STARTNO.
161	71	SBR	205	42	STD	0.	12	15.
162	97	DSZ	206	04	04	2020202020.	13	MAX NO
163	43	RCL	207	69	OP	2020202020.	14	.
164	53	53	208	00	00	2020202020.	15	FIRST
165	99	PRT	209	76	LBL	2020202020.	16	
166	22	INV	210	54)	3637133537.	17	TAKE OFF
167	44	SUM	211	73	RC*	3132400000.	18	
168	00	00	212	03	03	0.	19	NO. LEFT =
169	04	4	213	84	OP*	0.	20	12.
170	01	1	214	04	04	3013440031.	21	I TAKE
171	71	SBR	215	69	OP	3200000000.	22	
172	97	DSZ	216	23	23	0.	23	LEAVING
173	02	2	217	69	OP	0.	24	
174	32	XIT	218	24	24	2124353637.	25	TAKE OFF
175	43	RCL	219	43	RCL	0.	26	
176	00	00	220	04	04	0.	27	NO. LEFT =
177	99	PRT	221	22	INV	0.	28	7.
178	77	GE	222	67	EQ	3713261700.	29	I TAKE
179	28	LOG	223	54)	3221210000.	30	
180	98	ADV	224	69	OP	0.	31	LEAVING
181	98	ADV	225	05	05	0.	32	
182	04	4	226	92	RTN	3132400027.	33	TAKE OFF
183	05	5	227	00	0	1721370064.	34	
184	71	SBR	228	00	0	0.	35	TAKE OFF
185	97	DSZ				0.	36	5.
186	61	GTO				2400371326.	37	TAKE OFF
187	12	B				1700000000.	38	
188	76	LBL	001	11	A	0.	39	NO. LEFT =
189	24	CE	016	12	B	0.	40	2.
190	98	ADV	028	42	STD	2717134224.	41	I TAKE
191	98	ADV	058	28	LOG	3122000000.	42	
192	04	4	097	23	LNK	0.	43	LEAVING
193	09	9	102	35	1/X	0.	44	
194	71	SBR	132	25	CLR	4532410027.	45	
195	97	DSZ	153	34	FX	3232361700.	46	YOU LOOSE
196	61	GTO	158	33	X²	0.	47	STARTNO.
197	12	B	189	24	CE	0.	48	5.
198	76	LBL	199	97	DSZ	4532410043.	49	MAX NO
199	97	DSZ	210	54)	2431000000.	50	FIRST
						0.	51	
						0.	52	
						0.	53	TAKE OFF
						0.	54	
						0.	55	NO. LEFT =
						0.	56	4.
						0.	57	1.
						0.	58	YOU WIN
						0.	59	STARTNO.

CONTENTS OF REGISTERS

1.	00
4.	01
4.	02
21.	03
5.	04
3723243600.	05
3335322235.	06