

Program Description I

Program Title

FAN TAN

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Program Description, Equations, Variables

THE ANCIENT GAME OF "F A N T A N" IS PLAYED TODAY JUST AS IT HAS BEEN PLAYED IN THE ASIATIC COUNTRIES FOR MANY CENTURIES.

It is played by cutting a random pile of beans with a long, thin wand four at a time until 4, 3, 2, or 1 remain. This remaining number of beans is the winning number or section.

This program uses a pseudo-random number decreased by four instead of a pile of beans!!

THERE ARE FOUR POSSIBLE BETS:

- (1) Straight up on a number; pays 3 to 1
- (2) The shaded area between the number and the diagonal line; pays 2 to 1 if the side hits and is a standoff if the adjacent side hits.
- (3) The diagonal line: split any two sides; pays 1 to 1
- (4) GIN Bet pays 1 to 1 if closest side hits; standoff for adjacent sides; loses if opposite side hits.

Operating Limits and Warnings

===1. While it is possible to bet on three different numbers, practically speaking, it makes no sense.

====2. You may place no more than three bets during any one game.

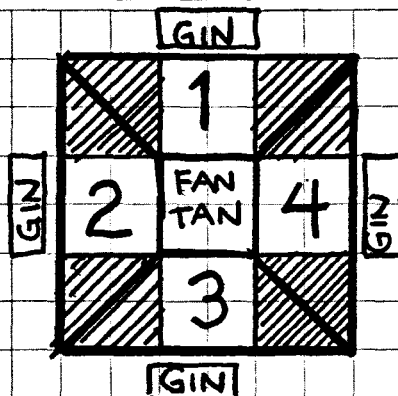
====3. The house always takes a 5% commission on all winning bets.

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Program Description II

Sketch(es)



Sample Problem(s) Start with a seed of 0.123456789 $fE \rightarrow 0.0$
 Bet \$2 on 1, 1 + 4, and 3 + 4 even split bet. 2 $fA \rightarrow 2.00$
 1 $A \rightarrow 1.$ 1.4 $B \rightarrow 2.$ 3.4 $C \rightarrow 3.$
 Play. $E \rightarrow 28.$ 24. 20. 16. 12. 8. 4. -2.00***, 0.000000000***, 2.00***,
 0.00 (total won on that play)
 Bet \$3.50 on 2 and 2 + 3 (shaded area). 3.50 $fA \rightarrow 3.50$
 2 $A \rightarrow 1.$ 2.3 $B \rightarrow 2.$
 Play. $E \rightarrow 26.$ 22. 18. 14. 10. 6. 2. 10.50***, 7.00***, 17.50 (total)
 What is the total amount won thus far? $fC \rightarrow \$16.52$
 (Remember, first play: 2.00 2nd play: 17.50 total 19.50 . . .
 \$19.50 less a 5% commission for the house--0.98--less \$2.00 lost on 1st play)
 Bet \$5 on 4 GIN BET, 2 + 3, and 1 + 2 even split. 5 $fA \rightarrow 5.00$
 4 $D \rightarrow 1.$ 2.3 $B \rightarrow 2.$ 1.2 $C \rightarrow 3.$
 Play. $E \rightarrow 22.$ 18. 14. 10. 6. 2. -5.00***, 10.00***, 5.00***,
 10.00 (total won on that play) and so on.
 Total amount won: $fC \rightarrow \$25.77$ Pretty good, huh!

Reference(s)

The basis rules are taken from a brochure and from actual play at the
 Park Tahoe Casino, South Shore, Lake Tahoe.

\$ BET	RE-SET	AMT WON	FAN TAN	INITIALIZE
1-NUMBER BET X	2-NUMBER SPLIT BET X.Y	2-NUMBER EVEN SPLIT X.Y	GIN BET X	PLAY

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	Load PROGRAM CARD - Sides 1 and 2			
2	INITIALIZE (Input a seed $0 \leq S < 1$)	seed	F E	0.0
3	INPUT the AMOUNT of your BET	\$\$	F A	\$\$
4	PLACE YOUR BETS (4 DIFFERENT TYPES) —			
4A)	SINGLE-NUMBER BET	1, 2, 3, 4	A	# of BET
4B)	SPLIT BET: SHADED AREA BETWEEN THE NUMBER AND THE DIAGONAL LINE. (X = primary #, Y = adjacent side)	X.Y	B	# of BET
4C)	SPLIT BET: EVEN SPLIT (DIAGONAL LINE) (X = any side, Y = adjacent side)	X.Y	C	# of BET
4D)	GIN BET	1, 2, 3, 4	D	# of BET
5	OPTIONAL: RE-SET (CLEAR YOUR BETS) START FRESH from STEP 4		F B	0.
6	OPTIONAL: REPEAT STEP 4 (ONCE OR TWICE)			
7	PLAY		E	RANDOM * NUMBER. \$\$ *** (\$\$ ***) (\$\$ ***) TOTAL THIS ROUND
8	OPTIONAL: VIEW TOTAL AMOUNT WON (LESS 5% COMMISSION) OR LOST		F C	TOTAL
9	TO CONTINUE, GTO STEP (3), 4, (6), AND 7 IF YOU DON'T REPEAT STEP 3, YOUR BET REMAINS THE SAME. STEP 5 IS USED ONLY IF YOU MAKE A MISTAKE IN BETTING.			
	* RANDOM NUMBER (21-28) WILL BE DISPLAYED (PAUSE) AND THEN DECREASED BY 4 AND DISPLAYED AGAIN. THIS PROCESS CONTINUES UNTIL 1 OR 2 OR 3 OR 4 REMAINS.			

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	e	g LBL e	32 25 15	INITIALIZE		1-	01
		h F?3	35 71 03		DSP O	23 00	← 1st number bet
		h F?3	35 71 03		h RTN	35 22	
		GTO f d	22 31 14	060	2	f LBL 2	31 25 02
		h T	35 73		h F?1	35 71 01	ADDITIONAL BET?
		+	61		GTO 3	22 03	FI is set for 3rd bet.
		g ex	32 52		h SFI	35 51 01	
		g FRAC	32 83		EEX	43	
		f CL REG	31 43		2	02	
010		STD E	33 15		÷	81	STORE 2ND BET IN R ₁
		DSP 1	23 01		+	61	
b		g LBL b	32 25 12	RE-SET (FLAGS)		STD 1	33 01
		0	00		2	02	← 2nd number bet.
		STD 2	33 02	070	DSP O	23 00	
		h CF 0	35 61 06		h RTN	35 22	
		h CF 1	35 61 01	3	f LBL 3	31 25 03	THIRD BET
		h CF 2	35 61 02		RCL 2	34 02	
		h RTN	35 22		f x ≠ 0	31 61	3 BETS MAXIMUM.
a		g LBL a	32 25 11	AMOUNT BET		GTO f d	22 31 14
020		STD 6	33 06		+	61	Therefore, display Error if R ₂ ≠ 0
		DSP 2	23 02		EEX	43	
		h RTN	35 22		2	02	
A		f LBL A	31 25 11	1-NUMBER BET		÷	81
		1	01		080	+	61
		GTO 1	22 01		STD 2	33 02	STORE 3RD BET IN R ₂
D		f LBL D	31 25 14	GIN BET		3	03
		4	04		DSP O	23 00	
1		f LBL 1	31 25 01	CONTINUATION of A, D		h RTN	35 22
		h F?0	35 71 00		E	f LBL E	31 25 15
030		GTO 2	22 02	FI is set for additional numbers bet.		h CF 0	35 61 00
		h SFO	35 51 00			h CF 1	35 61 01
		h STO I	35 33			RCL E	34 15
		h R↓	35 53		090	9	09
		STD A	33 11			9	09
		1	01	← 1st number bet.		7	07
		DSP O	23 00			X	71
		h RTN	35 22			g FRAC	32 83
B		f LBL B	31 25 12	SPLIT BET: SHADED		STD E	33 15
		2	02			h T	35 73
040		GTO 1	22 01			+	61
C		f LBL C	31 25 13	SPLIT BET: EVEN		7	07
		3	03			X	71
1		f LBL 1	31 25 01	CONTINUATION of B, C		f INT	31 83
		h F?0	35 71 00		100	STD 5	33 05
		GTO 2	22 02	FI is set for additional numbers bet.		DSP O	23 00
		h SFO	35 51 00		5	f LBL 5	31 25 05
		h STO I	35 33			h PAUSE	35 72
		h R↓	35 53			4	04
		f INT	31 83			g x ≤ y	32 71
050		STD A	33 11			STD - 5	33 51 05
		h LAST X	35 82			RCL 5	34 05
		g FRAC	32 83			g x > y	32 81
		1	01			GTO 5	22 05
		0	00		110	h PAUSE	35 72
		X	71			DSP 2	23 02
		STD B	33 12			RCL A	34 11

REGISTERS

0	1	2	3	4	5	6	7	8	9
	2ND BET	3RD BET			RANDOM NUMBER	\$ BET	TOTAL WON/LOST	TOTAL THIS ROUND	
S0	S1	S2	S3	S4	S5	S6	S7	S8	S9
A	PRIMARY #	B (ADJ. SIDE)	C	D	E	SEED	I	USED	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
6	GTO (i)	22 24	RE-FORM 2ND, 3RD BETS	170	RCL A	34 11	
	FLBL 6	31 25 06			gx=y	32 51	
	FINT	31 83			GTD 9	22 09	
	STO A	33 11			5	05	
	1	01			RCL 5	34 05	
	0	00			1	01	
	HLST X	35 82			+	61	
120	gFRAC	32 83			gx=y	32 51	
	X	71			1	01	
	FINT	31 83			RCL A	34 11	
	STOB	33 12			gx=y	32 51	
	HLST X	35 82		180	GTD 9	22 09	
	gFRAC	32 83		GTD 8	22 08		
	1	01	CLEAR R ₁ (and R ₂)	3	FLBL 3	31 25 03	COMPLETE LBL 3, 4
	0	00			1	01	
	X	71		7	FLBL 7	31 25 07	WIN
	hSDI	35 33			RCL 6	34 06	Deduct 5% COMMISSION
130	0	00			X	71	
	STO 1	33 01			STO +7	33 61 07	
	hF? 2	35 71 02			STO +8	33 61 08	
	STO 2	33 02			f-x-	31 84	
	RCL 5	34 05		190	1	83	
	RCL A	34 11			0	00	
	GTO (i)	22 24			5	05	
1	FLBL 1	31 25 01		SINGLE # BET		X	
	gx≠y	32 61	LOSE if x≠y otherwise, pay 3 to 1		fRND	31 24	
	GTD 8	22 08			STO -7	33 51 07	
140	3	03	SPLIT BET: SHADED		GTD 0	22 00	
	GTD 7	22 07		8	FLBL 8	31 25 08	LOSE
2	FLBL 2	31 25 02			RCL 6	34 06	STANDOFF
	gx=y	32 51			CHS	42	
	GTD 2	22 02		200	STO +7	33 61 07	
	hR↓	35 53			STO +8	33 61 08	
	RCL B	34 12			f-x-	31 84	
	gx≠y	32 61			GTD 0	22 00	
	GTD 8	22 08		9	FLBL 9	31 25 09	
	GTD 9	22 09			0	00	
150	2	02			DSP 9	23 09	
	FLBL 2	31 25 02			f-x-	31 84	
	2	02			DSP 2	23 02	
	GTD 7	22 07	COMPLETE LBL 2	0	FLBL 0	31 25 00	COMPLETE LBL 7, 8, 9
3	FLBL 3	31 25 03		210	RCL 1	34 01	Check for 2nd, 3rd BETS
	gx=y	32 51			fx≠0	31 61	
	GTD 3	22 03			GTD 6	22 06	
	hR↓	35 53			hSF 2	35 51 02	
	RCL B	34 12			RCL 2	34 02	
	gx≠y	32 61			fx≠0	31 61	
	GTD 8	22 08			GTD 6	22 06	
160	GTD 3	22 03			hCF 2	35 61 02	
4	FLBL 4	31 25 04			RCL 8	34 08	
	gx=y	32 51			STO -8	33 61 08	← CLEAR R ₈
	GTD 3	22 03		220	hRTN	35 22	
	RCL 5	34 05			gBLCL	32 25 13	DISPLAY TOTAL
	1	01	GIN BET		DSP 2	23 02	
	-	51			RCL 7	34 07	
	fx=0	31 51			hRTN	35 22	
	4	04					

LABELS

FLAGS

SET STATUS

A 1# BET	B SPLIT BET	C SPLIT BET	D GIN BET	E PLAY	0 2ND BET	FLAGS	TRIG	DISP
a \$ BET	b RE-BET	c TOTAL WON	d ERROR	e INITIALIZE	1 3RD BET	ON OFF	DEG ☒	FIX ☒
0 COMPLETE 7,8,9	1 USED	2 USED	3 USED	4 USED	2 CLEAR R ₂ ?	0 ☐ ☒	GRAD ☐	SCI ☐
5 DISPLAY LOOP	6 RE-FORM 2ND,3RD BETS	7 WIN	8 LOSE	9 DRAW	3 KEYBOARD ENTRY	1 ☐ ☒	RAD ☐	ENG ☐
						2 ☐ ☒		n 2
						3 ☐ ☒		