

# 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.

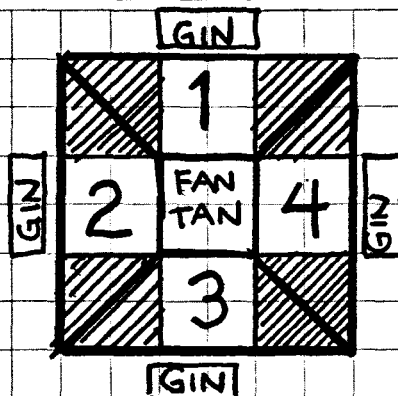
====3. The house always takes a 5% commission on all winning bets.

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	<b>FAN TAN</b>	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		<input type="checkbox"/> <input type="checkbox"/>	
2	INITIALIZE (Input a seed $0 \leq S < 1$ )	seed	<input type="checkbox"/> <input type="checkbox"/>	0.0
3	INPUT the AMOUNT of your BET	\$\$	<input type="checkbox"/> <input type="checkbox"/>	\$\$
4	PLACE YOUR BETS (4 DIFFERENT TYPES) —		<input type="checkbox"/> <input type="checkbox"/>	
4A)	SINGLE-NUMBER BET	1, 2, 3, 4	<input type="checkbox"/> <input type="checkbox"/>	# of BET
4B)	SPLIT BET: SHADED AREA BETWEEN THE NUMBER AND THE DIAGONAL LINE. (X = primary #, Y = adjacent side)	X.Y	<input type="checkbox"/> <input type="checkbox"/>	# of BET
4C)	SPLIT BET: EVEN SPLIT (DIAGONAL LINE) (X = any side, Y = adjacent side)	X.Y	<input type="checkbox"/> <input type="checkbox"/>	# of BET
4D)	GIN BET	1, 2, 3, 4	<input type="checkbox"/> <input type="checkbox"/>	# of BET
5	OPTIONAL: RE-SET (CLEAR YOUR BETS) START FRESH from STEP 4		<input type="checkbox"/> <input type="checkbox"/>	0.
6	OPTIONAL: REPEAT STEP 4 (ONCE OR TWICE)		<input type="checkbox"/> <input type="checkbox"/>	
7	PLAY		<input type="checkbox"/> <input type="checkbox"/>	RANDOM * NUMBER. \$\$ *** (\$\$ ***) (\$\$ ***) TOTAL THIS ROUND
8	OPTIONAL: VIEW TOTAL AMOUNT WON (LESS 5% COMMISSION) OR LOST		<input type="checkbox"/> <input type="checkbox"/>	TOTAL
9	TO CONTINUE, <u>GTO</u> 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.		<input type="checkbox"/> <input type="checkbox"/>	
	* 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.		<input type="checkbox"/> <input type="checkbox"/>	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	e	g LBLE	32 25 15	INITIALIZE		1-	01
		h F?3	35 71 03		DSP0	23 00	← 1st number bet
		h F?3	35 71 03		h RTN	35 22	
		GTO fd	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		Z	02	
010		STD E	33 15		÷	81	STORE 2ND BET IN R <sub>1</sub>
		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	DSP0	23 00	
		h CFI	35 61 06		h RTN	35 22	
		h CFI	35 61 01	3	f LBL 3	31 25 03	THIRD BET
		h CFI	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 fd	22 31 14
020		STD 6	33 06		+	61	Therefore, display Error
		DSP 2	23 02		EEX	43	if R <sub>2</sub> ≠ 0
		h RTN	35 22		Z	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 <sub>2</sub>
D		f LBL D	31 25 14	GIN BET		3	03
		4	04		DSP0	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 LBLE	31 25 15
030		GTO 2	22 02	FI is set for additional numbers bet.		h CFI	35 61 00
		h SFI	35 51 00			h CFI	35 61 01
		h SFI	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
		DSP0	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.		DSP0	23 00
		h SFI	35 51 00		5	f LBL 5	31 25 05
		h SFI	35 33			h PAUSE	35 72
		h R↓	35 53			4	04
050		f INT	31 83			g x ≤ y	32 71
		STD A	33 11			STD - 5	33 51 05
		h LASTX	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	CLEAR R <sub>1</sub> (and R <sub>2</sub> )		GTD 8	22 08	
	1	01		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	71	
	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			GTD 0	22 00	
	GTD 7	22 07	SPLIT BET: SHADED	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	
	hRL	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	COMPLETE LBL 2		0	00	
150	2	02			DSP 9	23 09	COMPLETE LBL 7, 8, 9
	2	02			f-x-	31 84	
	GTD 7	22 07			DSP 2	23 02	
3	FLBL 3	31 25 03	SPLIT BET: EVEN	0	FLBL 0	31 25 00	
	gx=y	32 51	WIN if x=y; pay 1 to 1 otherwise, check for LOSE or WIN on ADJ. SIDE.	210	RCL 1	34 01	Check for 2nd, 3rd BETS
	GTD 3	22 03			fx=0	31 61	
	hRL	35 53			GTD 6	22 06	
	RCL B	34 12			hSF 2	35 51 02	
	gx=y	32 61			RCL 2	34 02	
	GTD 8	22 08			fx=0	31 61	
	GTD 3	22 03			GTD 6	22 06	
160	4	04			hCF 2	35 61 02	
4	FLBL 4	31 25 04	GIN BET		RCL 8	34 08	
	gx=y	32 51	WIN if x=y; pay 1 to 1  check adjacent sides for STANDOFF		STO -8	33 61 08	
	GTD 3	22 03		220	hRTN	35 22	
	RCL 5	34 05			gBLB c	32 25 13	
	1	01			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 <input checked="" type="checkbox"/>	FIX <input checked="" type="checkbox"/>
0 COMPLETE 7,8,9	1 USED	2 USED	3 USED	4 USED	2 CLEAR R <sub>2</sub> ?	0 <input type="checkbox"/> <input checked="" type="checkbox"/>	GRAD <input type="checkbox"/>	SCI <input type="checkbox"/>
5 DISPLAY LOOP	6 RE-FORM 2ND,3RD BETS	7 WIN	8 LOSE	9 DRAW	3 KEYBOARD ENTRY	1 <input type="checkbox"/> <input checked="" type="checkbox"/>	RAD <input type="checkbox"/>	ENG <input type="checkbox"/>
						2 <input type="checkbox"/> <input checked="" type="checkbox"/>		n <u>2</u>
						3 <input type="checkbox"/> <input checked="" type="checkbox"/>		