

Program Description I

Program Title Star WarsContributor's Name Bruce HansenAddress 220 IrisCity LansingState MIZip Code 48917**Program Description, Equations, Variables**

Your mission is to fly your ship from an enemy planet (point 0,0) to your home base (point 100,100). On the way you will encounter from 2 to 9 enemy starships (you decide how many) which may move faster than you. You may move or shoot on each turn but the enemy shoots at you whatever you do. At the start of the game you are given 2 less missiles than the number of enemy. At most you may move 20 units in any direction but remember that the enemy will follow and probably catch you no matter where you go. Your only advantage is that one of your shots may relocate (enemy ships aren't destroyed, just moved very far away out of firing range-theirs and yours) more than one enemy. For example, if more than one ship is 90° from you a shot there would move them all provided your shot passed within 4 units of them. If your ship gets within 5 units of the home base without being destroyed you win. A move is input as follows; L B ENTER↑, Distance traveled, A(MOVE). If you move more than 20 units the move is set to 20. If you try to shoot with no shots left you will stay in the same place but the enemy will close in and shoot at you. To find your position hit RCL A for your X-position, RCL B for y-position. Use graph paper to keep track of the game.

Operating Limits and Warnings

When taking a shot your L should be from 0-180 or 0-180. An input like 240° will be a miss even if this is where the vessel was.

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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Sketch(es)

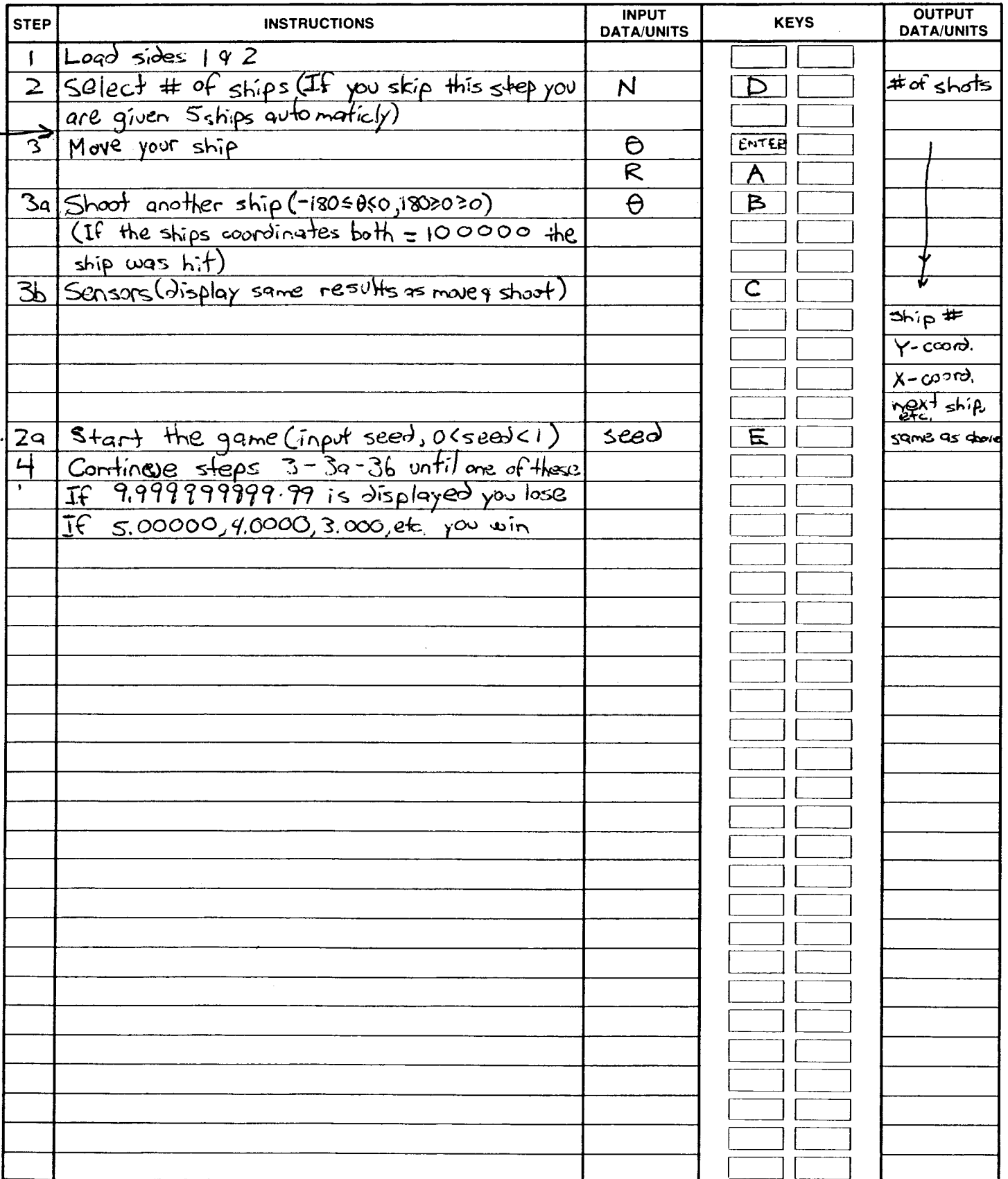
Sample Problem(s) Load sides 142 (EXAMPLE SHOULD BE DONE ON GRAPH PAPER)

Input # of ship 3 D 1 (You have 1 shot to use)
 Input seed and start .35 E 3.(ship#3) 19.(Y-coordinate), 11.(X-coordinate)
 you are at 0,0 at the start 2. " " 56. " " 68. " "
 1. " " 63. " " 21. " "
 Move 60° at 20 units 60 ENT 20 A 3. " " 2. " " 3. " "
 find your coordinates RCL A 10(X-coord.) 2. " " 42. " " 48. " "
 RCL B 17(Y-coord.) 1. " " 47. " " 17. " "
 Move 45° at 20 units 45 ENT 20 A 3. " " 21. " " 17. " "
 your X (RCL A) 24. 2. " " 32. " " 25. " "
 your Y (RCL B) 31. 1. " " 22. " " 28. " "
 You're surrounded and will probably
 be destroyed whether you SHOT
 or MOVE. For sake of example we
 will shoot.

Shoot your missile at -70° -70 B 9.99999999 99 (you were blown up)
 Just to see if your missile
 did any damage hit sensors.
 If enemies coordinates = 100000
 he was hit

SENSORS C 3.(ship#), 21.(Y-coord.), 17.(X-coord.)
 2. " " 32. " " 25. " "
 This ship was destroyed 1. " " 10000. " " 10000. " "

Reference(s)



STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	* LBL A	31 25 11	test if move > 20 if so move = 20		EEX	43	test for win
	CFO	35 61 00			2	02	
	2	02			RCL A	34 11	
	0	00		060	-	31	
	X<Y?	32 71			→P	32 72	
	X<Y	35 52			S	05	
	RV	35 53	store new coordinates		X<Y	32 71	win loop
	R←	31 72			GTO C	22 13	
	RCL A	34 11			STI	35 33	
010	+	61		*	LBL 5	31 25 05	
	STO A	33 11			RCL	34 34	
	RV	35 53			DSP(i)	23 24	
	RCL B	34 12	store # of ships		PAUSE	35 72	
	+	61		070	DSZ	31 33	
	STO B	33 12			GTO 5	22 05	
	RCL D	34 14			DSP O	23 06	
	STI	35 33			R/S	84	
	* LBL 2	31 25 02		*	LBL 3	31 25 03	test if any shots left
	GSB 8	31 22 08	find polar coord for move of enemy. If you are shooting move = 0		P<S	31 42	
020	RV	35 53			RCL 9	34 09	
	1	01			P<S	31 42	
	8	08			X<O	31 71	
	0	00			RTN	35 22	
	+	61	store new enemy coordinates	080	GSB 8	31 22 08	test if enemy is hit
	GSB 9	31 22 09			X<Y	35 52	
	1	01			RCL C	34 13	
	5	05			-	51	
	X	71			TAN	31 64	
	LST X	35 82			X	71	
030	+	61	store new enemy coordinates		ABS	35 64	subtract one from # of shots and test if there were any left. If not you stay still and the enemy moves and shoots
	F<O	35 71 00		090	4	04	
	0	00			X>Y	32 81	
	R←	31 72			GTO 4	22 04	
	DSZ	31 33		*	RTN	35 22	
	STO + (i)	33 61 24		*	LBL B	31 25 12	store shot angle
	ISZ	31 34	enemy fires at you		SFO	35 58 00	
	RV	35 53			STO C	33 13	
	STO + (i)	33 61 24			RCL D	34 14	
	GSB 8	31 22 08			STI	35 33	
040	5	05			P<S	31 42	
	0	00	test if you are shooting		1	01	move the hit enemy far away
	÷	81			STO - 9	33 51 09	
	1/x	35 62			RCL 9	34 09	
	STO + 0	33 61 00		100	P<S	31 42	
	F<O	35 71 00			X<O	31 71	
	GSB 3	31 22 03			CFO	35 61 00	
	DSZ	31 33	Get next ship		GTO 2	22 02	
	DSZ	31 33		*	LBL 4	31 25 04	
	GTO 2	22 02			10*	32 53	
050	RCL O	34 00			STO(i)	33 24	
	EEX	43			DSZ	31 33	
	2	02			STO(i)	33 24	
	X<Y	32 71	test if you are destroyed		ISZ	31 34	
	N!	35 81		110	RTN	35 22	
	RCL B	34 12		*	LBL 8	31 25 08	
	-	51			RCL(i)	34 24	

REGISTERS

0 your status	1 ship 1-x	2 ship 1-y	3 ship 2-x	4 ship 2-y	5 ship 3-x	6 ship 3-y	7 ship 4-x	8 ship 4-y	9 ship 5-x
S0 ship 5-y	S1 ship 6-x	S2 ship 6-y	S3 ship 7-x	S4 ship 7-y	S5 ship 8-x	S6 ship 8-y	S7 ship 9-x	S8 ship 9-y	S9 # of shots
A your x	B your y	C shot θ	D number of ships	E seed	I used				

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	RCL B	34 12	find distance between enemy and you		X=Y	32 51	display enemy ship # and his coordinates
	-	51		170	PAUSE	35 22	
	DSZ	31 33			RCL(i)	34 24	
	RCL(i)	34 24			-X-	31 84	
	RCL A	34 11			DSZ	31 33	
	-	51			GTO 1	22 01	
	P←	32 72			R/S	84	
120	ISZ	31 33		#	LBL D	31 25 14	store # of ships and shots
	RTN	35 22			Z	02	
*	LBL O	31 25 00	store random coordinates of enemy		X	71	
	GSB Y	31 22 09			STO D	33 14	
	EEX	43		180	Z	02	
	Z	02			÷	81	
	X	71			Z	02	
	STO(i)	33 24			-	51	
	DSZ	31 33			P↔S	31 42	
	GTO 0	22 00			STO 9	33 09	
130	RTN	35 22			P↔S	31 42	
*	LBL 9	31 25 09	random # generator		R/S	84	
	TI	35 73					
	RCL E	34 15		190			
	+	61					
	X ²	32 54					
	FRAC	82 84					
	STO E	33 15					
	RTN	35 22					
	* LBLE	31 25 15	store seed and test if # of ships was entered if not they = 5				
140	RCL D	34 14					
	GL REG	31 43					
	STO D	33 14					
	RV	35 53		200			
	STO E	33 15					
	I	01					
	O	00					
	RCL D	34 14					
	X=0	31 51					
	RV	35 53					
150	STO D	33 14					
	STI	35 33					
	Z	02					
	÷	81					
	Z	02		210			
	-	51					
	P↔S	31 42					
	STO 9	33 09					
	P↔S	31 42					
	GSBO	31 22 00	store # of ships				
160	* LBL C	31 25 13					
	RCL D	34 14					
	STI	35 33					
	* LBL I	31 25 01					
	RCL I	35 34		220			
	Z	02					
	÷	81					
	INT	31 83					
	LSTX	35 32					

LABELS					FLAGS	SET STATUS		
A MOVE 0←R	B SHOOT 0	C SENSORS	D # SHIPS	E START	0	FLAGS	TRIG	DISP
a	b	c	d	e	1	ON OFF		
0 ships position	1 sensors loop	2 move, shoot test for win	3 shoot at ships	4 move hit ship	2	0 ☐ ☒	DEG ☒	FIX ☒
5 win loop	6	7	8 distance from ship to you	9 random #	3	1 ☐ ☒	GRAD ☐	SCI ☐
						2 ☐ ☒	RAD ☐	ENG ☐
						3 ☐ ☒		n ☐