

HP-25 Program Form

Title Numerical Integration with Step Refinement Page 1 of 2
 Programmer Peter Henrici

STEP	INSTRUCTIONS	INPUT DATA/UNITS	S	Y	KEYS	YSA YSTMS	OUTPUT DATA/UNITS
1	Key in program	←			see reverse		
2a	Your function begins at line 33	←			see reverse		
					for example		
2b	Your function gets its x-value from R6	}					
2c	When done your function must be followed by GTO 09	}					
3	Put 6 in R7	Example	STO	7			
4	f PRGM R/S		f	PRGM			
			R/S				
			R/S				
5...	→ R/S to run again with improved accuracy						

HP-25 Program Form

Title Numerical Integration with Step Refinement Page 2 of 2

Switch to PRGM mode, press **[I]** **[PRGM]**, then key in the program.

DISPLAY		KEY ENTRY	X	Y	Z	T	COMMENTS	REGISTERS
LINE	CODE							
00								
01		RCL 7	b					R ₀ previous
02		STO 5					the stepsize is initially b	previous
03		$\frac{2}{\div}$	h					R ₁ previous
04		\div						previous
05		STO 6					x of $h/2$ is now in	R ₆
06		CL X						
07		STO 4					0 is now in	R ₄
08		GTO 33						
09		STO 4						
10		RCL 5						R ₃ previous
11		STO 6					New x of x th is now in	R ₆
12		RCL 7					) Test if $x < b$	R ₄ I
13		RCL 6						
14		$x < y$					) Keep computing if it is	R ₅ h
15		GTO 33						
16		RCL 5					) Multiply I by h and store the final I	R ₆ I
17		RCL 4						
18		\times						
19		STO 4						
20		R/S					I Display I	
21		$\frac{2}{\div}$					) h becomes $h/2$	R ₇ b
22		STO 5						
23		RCL 1					) The previous I's are maintained	
24		STO 0						
25		RCL 2						
26		STO 1						
27		RCL 3						
28		STO 2						
29		RCL 4						
30		STO 3						
31		RCL 5	h				x is obtained from	R ₆
32		GTO 03						
33		4					) The function $\frac{4}{1+x^2}$ finishing with GTO 09	
34		RCL 6						
35		$g x^2$						
36		1						
37		+						
38		\div						
39		GTO 09						
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								

previous I
previous I
previous I
previous I
previous I
I
h
I
b
The whole region