

solutions.txt	Mon Oct 07 10:33:40 2013	1	
1: *****			
2: ./natlog.f90			
3: *****			
4: *****			
5: PROGRAM natlog			
6: 7: !*** Taylor series expansion : Calculate the natural log expanded about 1			
7: 8: *****			
8: 9: *****			
9: 10: IMPLICIT NONE			
10: 11: *****			
11: 12: *****			
12: 13: INTEGER :: i, nterms,maxterms			
13: 14: REAL			
14: 15: :: tot,num			
15: 16: tot=0			
16: 17: *****			
17: 18: PRINT*, "Enter the value to approximate"			
18: 19: READ*, num			
19: 20: *****			
20: 21: PRINT*, "Enter the maximum number of terms to sum up to"			
21: 22: READ*, maxterms			
22: 23: *****			
23: 24: DO nterms=2,maxterms,2			
24: 25: tot=0			
25: 26: DO i=1,nterms			
26: 27: *****			
27: 28: tot=tot+(-1)**(i+1)*(num-1)**i/i			
28: 29: *****			
29: 30: ENDDO			
30: 31: *****			
31: 32: PRINT*, "Summation = ",tot, " for ", nterms, " terms. : Error = ", ALOG(num)-to			
32: 33: *****			
33: 34: ENDDO			
34: 35: *****			
35: 36: END PROGRAM natlog			
36: 37: *****			
37: 38: *****			
38: 39: ! Enter the value to approximate			
39: 40: !1.5			
40: 41: ! Enter the maximum number of terms to sum up to			
41: 42: !20			
42: 43: ! Summation = 0.3750000 for 2 terms. : Error = 3.0465096E-02			
43: 44: ! Summation = 0.4010417 for 4 terms. : Error = 4.4234395E-03			
44: 45: ! Summation = 0.4046875 for 6 terms. : Error = 7.7760220E-04			
45: 46: ! Summation = 0.4053153 for 8 terms. : Error = 1.4981627E-04			
46: 47: ! Summation = 0.4054346 for 10 terms. : Error = 3.0457973E-05			
47: 48: ! Summation = 0.4054587 for 12 terms. : Error = 6.4373016E-06			
48: 49: ! Summation = 0.4054637 for 14 terms. : Error = 1.4007092E-06			
49: 50: ! Summation = 0.4054648 for 16 terms. : Error = 3.2782555E-07			
50: 51: ! Summation = 0.4054650 for 18 terms. : Error = 8.9406967E-08			
51: 52: ! Summation = 0.4054650 for 20 terms. : Error = 5.9604645E-08			
52: 53: *****			
53: 54: *****			
54: 55: *****			
55: 56: *****			
56: 57: *****			
57: 58: ./summation.f90			
58: 59: *****			
59: 60: PROGRAM summation			
60: 61: *****			
61: 62: !*** Calculate the sum of the squares of the first n integers			
62: 63: *****			
63: 64: IMPLICIT NONE			
64: 65: *****			
65: 66: *****			

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67: INTEGER :: i, num		
68: REAL :: tot		
69: *****		
70: tot=0		
71: *****		
72: PRINT*, "Enter the integer number to sum up to"		
73: READ*, num		
74: *****		
75: *****		
76: DO i=1,num		
77: !** sum the squares store in tot		
78: tot=tot+i*i		
79: ENDDO		
80: *****		
81: PRINT*, "Summation = ",tot		
82: *****		
83: END PROGRAM summation		
84: *****		
85: !** Enter the integer number to sum up to		
86: !** 5		
87: !** Summation = 55.00000		
88: *****		
89: *****		
90: *****		
91: *****		
92: *****		