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(%i1) batch("fairing.mac")$
read and interpret file: #p/home/peterj/work/eilmer3/2D/convex-ramp/notes/fair
(%i2) g : b s^3 + a s^4
(%o2) a s^4 + b s^3
(%i3) dgds : diff(g, s, 1)
(%o3) 4 a s^3 + 3 b s^2
(%i4) d2gds2 : diff(g, s, 2)
(%o4) 12 a s^2 + 6 b s
(%i5) s_trial : 3.95
(%o5) 3.95

(%i6) eq1 : ev(dgds = tan(-18 pi / 180), s = s_trial)
(%o6) 46.807500000000001 b + 246.5195 a = -tan(pi / 10)

(%i7) eq2 : ev(d2gds2 = 0, s = s_trial)
(%o7) 23.7 b + 187.23 a = 0

(%i8) ev(soln : solve([eq1, eq2], [a, b]), numer)
rat: replaced 0.32491969623291 by 17803/54792 = 0.32491969630603
rat: replaced 246.5195 by 158019/641 = 246.5195007800312
rat: replaced 46.807500000000001 by 18723/400 = 46.8075
rat: replaced 187.23 by 18723/100 = 187.23
rat: replaced 23.7 by 237/10 = 23.7

(%o8) [[a = 0.0026360567692392, b = -0.02082484847699]]

(%i9) my_g : ev(g, (soln_1)_1, (soln_1)_2)
(%o9) 0.0026360567692392 s^4 - 0.02082484847699 s^3

(%i10) ev(g_end : ev(my_g, s = s_trial), numer)
(%o10) -0.64171640426542

(%i11) my_dgds : ev(dgds, (soln_1)_1, (soln_1)_2)
(%o11) 0.010544227076957 s^3 - 0.06247454543097 s^2

(%i12) ev(L : quad_qags(sqrt(my_dgds^2 + 1), s, 0, s_trial), numer)
(%o12) [4.026035184620049, 4.4697969599161732 10^-14, 21, 0]

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