```
%5.9 4a
fprintf("SECTION 5.9 QUESTION 4a\n");
a = 0;
b = 1;
m = 2;
N = 10;
alpha = [2 2];
f = @(t, u) [(u(2)); (3*u(2) - 2*u(1) + 6*exp(-t))];
soltF = @(t) (2*exp(2*t) - exp(t) + exp(-t));
[t, z, y] = RK4Systems(a, b, m, N, alpha, f, soltF);
for i = 1: N+1
   fprintf("t = %.2f z(1, %d) = %.15f z(2, %d) = %.15f; solt(1, %d) =
 %.15f\n", t(i), i, z(1, i), i, z(2, i), i, y(i));
end
fprintf("\n\n");
```

```
SECTION 5.9 QUESTION 4a
t = 0.00 z(1, 1) = 2.000000000000000 z(2, 1) = 2.000000000000000;
 solt(1, 1) = 2.000000000000000
t = 0.10 z(1, 2) = 2.242468099293432 z(2, 2) = 2.875595246726343;
 solt(1, 2) = 2.242472016280652
t = 0.20 z(1, 3) = 2.580967377108418 z(2, 3) = 3.927146008354644;
 solt(1, 3) = 2.580977390200353
t = 0.30 z(1, 4) = 3.035177985837501 z(2, 4) = 5.197761232253504;
 solt(1, 4) = 3.035197013886733
t = 0.40 z(1, 5) = 3.629545279156657 z(2, 5) = 6.739956583155705;
 solt(1, 5) = 3.629577205379305
t = 0.50 z(1, 6) = 4.394323086438352 z(2, 6) = 8.617777271756431;
 solt(1, 6) = 4.394373045930596
t = 0.60 z(1, 7) = 5.366851934164671 z(2, 7) = 10.909389902526632;
 solt(1, 7) = 5.366926681176613
t = 0.70 z(1, 8) = 6.593124153790211 z(2, 8) = 13.710247573985711;
 solt(1, 8) = 6.593232530010283
t = 0.80 z(1, 9) = 8.129699353813292 z(2, 9) = 17.136955536086639;
 solt(1, 9) = 8.129852884414984
t = 0.90 z(1, 10) = 10.046047826315077 z(2, 10) = 21.331992892654263;
 solt(1, 10) = 10.046261477409542
t = 1.00 z(1, 11) = 12.427416670803280 z(2, 11) = 26.469480263734297;
 solt(1, 11) = 12.427709810573699
```

```
%11.1 3c
fprintf("SECTION 11.1 3C\n");
a = 0;
b = 1;
m = 2;
N = 10;
alpha1 = [-1 0];
f1 = @(t, u) [(u(2)); (-(t+1)*u(2) + 2*u(1) + (1-t^2)*exp(-t))];
alpha2 = [0 1];
f2 = @(t, u) [(u(2)); (-(t+1)*u(2) + 2*u(1))];
soltF = @(t) (1);
```

```
[t, z1, y] = RK4Systems(a, b, m, N, alpha1, f1, soltF); %using my RK4
 method
[t, z2, y] = RK4Systems(a, b, m, N, alpha2, f2, soltF);
BETA = 0;
final = z1(1, 1:end) + (BETA - z1(1, end))*z2(1, 1:end)/z2(1, end);
fprintf("Using my own implementation of rk4 for systems:\n");
for i = 1: N+1
   fprintf("t = %.2f y(1, %d) = %.15f\n", t(i), i, final(i));
end

fprintf("\n");
t = [0:.1:1];
[t1,u1]=ode45(@(t,u) f1(t,u),t,[-1 0],[]);
[t2,u2]=ode45(@(t,u) f2(t,u),t,[0 1],[]);

u1 = transpose(u1);
u2 = transpose(u2);
final = u1(1, 1:end) + (BETA - u1(1, end))*u2(1, 1:end)/u2(1, end);
fprintf("Using ode45\n");
for i = 1: N+1
   fprintf("t = %.2f y(1, %d) = %.15f\n", t(i), i, final(i));
end
fprintf("\n\n");
```

```
SECTION 11.1 3C
Using my own implementation of rk4 for systems:
t = 0.00 y(1, 1) = -1.000000000000000
t = 0.10 y(1, 2) = -0.814354982632459
t = 0.20 y(1, 3) = -0.654986756685609
t = 0.30 y(1, 4) = -0.518575377054146
t = 0.40 y(1, 5) = -0.402194808301704
t = 0.50 y(1, 6) = -0.303268018266331
t = 0.60 y(1, 7) = -0.219527051386318
t = 0.70 y(1, 8) = -0.148977540644027
t = 0.80 y(1, 9) = -0.089867174910922
t = 0.90 y(1, 10) = -0.040657690246798
t = 1.00 y(1, 11) = -0.000000000000000

Using ode45
t = 0.00 y(1, 1) = -1.000000000000000
t = 0.10 y(1, 2) = -0.814353592559457
t = 0.20 y(1, 3) = -0.654984530545250
t = 0.30 y(1, 4) = -0.518572691588431
t = 0.40 y(1, 5) = -0.402191971449127
t = 0.50 y(1, 6) = -0.303265278452116
t = 0.60 y(1, 7) = -0.219524606167702
t = 0.70 y(1, 8) = -0.148975544637895
t = 0.80 y(1, 9) = -0.089865746959492
t = 0.90 y(1, 10) = -0.040656919803444
t = 1.00 y(1, 11) = 0.000000000000000
```

```
%11.1 4b
```

```
fprintf("SECTION 11.1 4b\n");
a = 0;
b = pi/4;
m = 2;
N = 5;
alpha1 = [0 0];
f1 = @(t, u) [(u(2)); (-4*u(1) + cos(t))];
alpha2 = [0 1];
f2 = @(t, u) [(u(2)); (-4*u(1))];
soltF = @(t) (-1/3*cos(2*t) -sqrt(2)/6*sin(2*t)+1/3*cos(t));
[t, z1, y] = RK4Systems(a, b, m, N, alpha1, f1, soltF); %using my RK4
 method
[t, z2, y] = RK4Systems(a, b, m, N, alpha2, f2, soltF);
BETA = 0;
final = z1(1, 1:end) + (BETA - z1(1, end))*z2(1, 1:end)/z2(1, end);
fprintf("Using my own implementation of rk4 for systems:\n");
for i = 1: N+1
   fprintf("t = %.2f y(1, %d) = %.15f solt(%d) = %.15f\n", t(i), i,
 final(i), i, y(i));
end

fprintf("\n");
t = [0:pi/20:pi/4];
[t1,u1]=ode45(@(t,u) f1(t,u),t,[0 0],[]);
[t2,u2]=ode45(@(t,u) f2(t,u),t,[0 1],[]);

u1 = transpose(u1);
u2 = transpose(u2);
final = u1(1, 1:end) + (BETA - u1(1, end))*u2(1, 1:end)/u2(1, end);
fprintf("Using ode45\n");
for i = 1: N+1
   fprintf("t = %.2f y(1, %d) = %.15f\n", t(i), i, final(i));
end

fprintf("\n\n");
```

```
SECTION 11.1 4b
Using my own implementation of rk4 for systems:
t = 0.00 y(1, 1) = 0.000000000000000 solt(1) = 0.000000000000000
t = 0.16 y(1, 2) = -0.060611981803983 solt(2) = -0.060625395974809
t = 0.31 y(1, 3) = -0.091174794639425 solt(3) = -0.091195805285749
t = 0.47 y(1, 4) = -0.089592135166050 solt(4) = -0.089613376973930
t = 0.63 y(1, 5) = -0.057485635954257 solt(5) = -0.057499503987986
t = 0.79 y(1, 6) = 0.000000000000000 solt(6) = -0.000000000000000

Using ode45
t = 0.00 y(1, 1) = 0.000000000000000
t = 0.16 y(1, 2) = -0.060625406623177
t = 0.31 y(1, 3) = -0.091195811242566
t = 0.47 y(1, 4) = -0.089613377095519
t = 0.63 y(1, 5) = -0.057499498351501
t = 0.79 y(1, 6) = 0.000000000000000
```

```
%11.2 3d
fprintf("SECTION 11.2 3d\n");
alpha = 2;
beta = 2;
a = 0;
b = pi;
t = (beta-alpha)/(b-a);
soltF = @(t) (2 + sin(t));
tol = 10^-4;
fprintf("Using Shooting method with newton's method for root finding
\n");
[T Y SOLT] = ShootingMethod(alpha, beta, a, b, t, tol, 'f3d', soltF);
for i = 1: length(T)
   fprintf("t = %.2f y(1, %d) = %.15f solt(1, %d) = %.15f\n", T(i), i,
 Y(i), i, SOLT(i));
end
fprintf("\n\n");
```

```
SECTION 11.2 3d
Using Shooting method with newton's method for root finding
Number of iterations taken = 24
t = 0.00 y(1, 1) = 2.000000000000000 solt(1, 1) = 2.000000000000000
t = 0.00 y(1, 2) = 2.000050229143709 solt(1, 2) = 2.000050237728609
t = 0.00 y(1, 3) = 2.000100458287722 solt(1, 3) = 2.000100475457091
t = 0.00 y(1, 4) = 2.000150687431913 solt(1, 4) = 2.000150713185320
t = 0.00 y(1, 5) = 2.000200916576155 solt(1, 5) = 2.000200950913168
t = 0.00 y(1, 6) = 2.000452062293688 solt(1, 6) = 2.000452139542267
t = 0.00 y(1, 7) = 2.000703207993468 solt(1, 7) = 2.000703328142837
t = 0.00 y(1, 8) = 2.000954353659647 solt(1, 8) = 2.000954516699030
t = 0.00 y(1, 9) = 2.001205499276370 solt(1, 9) = 2.001205705194997
t = 0.00 y(1, 10) = 2.002461226063358 solt(1, 10) = 2.002461646216732
t = 0.00 y(1, 11) = 2.003716949236237 solt(1, 11) = 2.003717583355483
t = 0.00 y(1, 12) = 2.004972666813563 solt(1, 12) = 2.004973514630144
t = 0.01 y(1, 13) = 2.006228376813904 solt(1, 13) = 2.006229438059617
t = 0.01 y(1, 14) = 2.012506743809483 solt(1, 14) = 2.012508868191794
t = 0.02 y(1, 15) = 2.018784624175445 solt(1, 15) = 2.018787805040450
t = 0.03 y(1, 16) = 2.025061770267465 solt(1, 16) = 2.025066000997569
t = 0.03 y(1, 17) = 2.031337934462933 solt(1, 17) = 2.031343208484346
t = 0.06 y(1, 18) = 2.062695357360292 solt(1, 18) = 2.062705756880251
t = 0.09 y(1, 19) = 2.093991121268688 solt(1, 19) = 2.094006490576966
t = 0.13 y(1, 20) = 2.125194381224151 solt(1, 20) = 2.125214553628656
t = 0.16 y(1, 21) = 2.156274360976469 solt(1, 21) = 2.156299181443267
t = 0.24 y(1, 22) = 2.233276074759689 solt(1, 22) = 2.233312177676658
t = 0.31 y(1, 23) = 2.308839840086006 solt(1, 23) = 2.308886726750501
t = 0.39 y(1, 24) = 2.382500717207533 solt(1, 24) = 2.382556886438667
t = 0.47 y(1, 25) = 2.453804313766912 solt(1, 25) = 2.453868455708864
t = 0.55 y(1, 26) = 2.522309870357478 solt(1, 26) = 2.522381775023040
t = 0.63 y(1, 27) = 2.587594999196091 solt(1, 27) = 2.587674436984631
t = 0.71 y(1, 28) = 2.649257528479976 solt(1, 28) = 2.649343890620631
t = 0.79 y(1, 29) = 2.706917623174892 solt(1, 29) = 2.707009923242200
t = 0.86 y(1, 30) = 2.760219558067477 solt(1, 30) = 2.760317004582324
t = 0.94 y(1, 31) = 2.808834024218966 solt(1, 31) = 2.808936478758138
t = 1.02 y(1, 32) = 2.852461181094865 solt(1, 32) = 2.852568590543731
t = 1.10 y(1, 33) = 2.890832678175945 solt(1, 33) = 2.890944333460797
```

```
t = 1.18 y(1, 34) = 2.923712254408962 solt(1, 34) = 2.923827108293023
t = 1.26 y(1, 35) = 2.950896318313879 solt(1, 35) = 2.951014181798935
t = 1.34 y(1, 36) = 2.972216944210575 solt(1, 36) = 2.972337936629749
t = 1.41 y(1, 37) = 2.987543277042726 solt(1, 37) = 2.987666904746067
t = 1.49 y(1, 38) = 2.996781336377691 solt(1, 38) = 2.996906577962052
t = 1.57 y(1, 39) = 2.999873445726673 solt(1, 39) = 2.999999990619823
t = 1.65 y(1, 40) = 2.996800131965357 solt(1, 40) = 2.996928070801683
t = 1.73 y(1, 41) = 2.987580752700608 solt(1, 41) = 2.987709757914826
t = 1.81 y(1, 42) = 2.972272770683791 solt(1, 42) = 2.972401885923601
t = 1.88 y(1, 43) = 2.950970052319561 solt(1, 43) = 2.951098832949216
t = 1.96 y(1, 44) = 2.923803403370504 solt(1, 44) = 2.923931939397244
t = 2.04 y(1, 45) = 2.890940589102399 solt(1, 45) = 2.891068698200341
t = 2.12 y(1, 46) = 2.852585095097941 solt(1, 46) = 2.852711722168622
t = 2.20 y(1, 47) = 2.808972917368163 solt(1, 47) = 2.809097494814313
t = 2.28 y(1, 48) = 2.760372164077222 solt(1, 48) = 2.760494912352254
t = 2.36 y(1, 49) = 2.707082753560569 solt(1, 49) = 2.707203625865322
t = 2.43 y(1, 50) = 2.649434542639991 solt(1, 50) = 2.649552193855861
t = 2.51 y(1, 51) = 2.587782307260455 solt(1, 51) = 2.587896056573256
t = 2.59 y(1, 52) = 2.522505070560574 solt(1, 52) = 2.522615344606600
t = 2.67 y(1, 53) = 2.454005680332185 solt(1, 53) = 2.454112535253207
t = 2.75 y(1, 54) = 2.382708248017620 solt(1, 54) = 2.382809971112237
t = 2.83 y(1, 55) = 2.309051457692331 solt(1, 55) = 2.309147256202126
t = 2.91 y(1, 56) = 2.233488094820800 solt(1, 56) = 2.233578545655635
t = 2.98 y(1, 57) = 2.156484558511587 solt(1, 57) = 2.156569745702429
t = 3.02 y(1, 58) = 2.117557526318204 solt(1, 58) = 2.117639411114597
t = 3.06 y(1, 59) = 2.078448933658319 solt(1, 59) = 2.078527368649195
t = 3.10 y(1, 60) = 2.039219147788165 solt(1, 60) = 2.039294031446313
t = 3.14 y(1, 61) = 1.999928792284278 solt(1, 61) = 2.000000000000000
```

```
%11.2 4a
fprintf("SECTION 11.2 4a\n");
alpha = .5;
beta = (1/3);
a = 1;
b = 2;
t = (beta-alpha)/(b-a);
soltF = @(t) ((t+1).^-1);
tol = 10^-4;
fprintf("Using Shooting method with newton's method for root finding
\n");
[T Y SOLT] = ShootingMethod(alpha, beta, a, b, t, tol, 'f4a', soltF);
for i = 1: length(T)
   fprintf("t = %.2f y(1, %d) = %.15f solt(1, %d) = %.15f\n", T(i), i,
 Y(i), i, SOLT(i));
end
fprintf("\n\n");
```

```
SECTION 11.2 4a
Using Shooting method with newton's method for root finding
Number of iterations taken = 3
t = 1.00 y(1, 1) = 0.500000000000000 solt(1, 1) = 0.500000000000000
t = 1.00 y(1, 2) = 0.499987440882952 solt(1, 2) = 0.499987440883313
```

```
t = 1.00 y(1, 3) = 0.499974882396813 solt(1, 3) = 0.499974882397536
t = 1.00 y(1, 4) = 0.499962324541537 solt(1, 4) = 0.499962324542622
t = 1.00 y(1, 5) = 0.499949767317075 solt(1, 5) = 0.499949767318521
t = 1.00 y(1, 6) = 0.499886990655324 solt(1, 6) = 0.499886990658579
t = 1.00 y(1, 7) = 0.499824229756815 solt(1, 7) = 0.499824229761877
t = 1.00 y(1, 8) = 0.499761484615609 solt(1, 8) = 0.499761484622479
t = 1.00 y(1, 9) = 0.499698755225775 solt(1, 9) = 0.499698755234452
t = 1.00 y(1, 10) = 0.499385344339701 solt(1, 10) = 0.499385344357413
t = 1.00 y(1, 11) = 0.499072326349585 solt(1, 11) = 0.499072326376325
t = 1.00 y(1, 12) = 0.498759700517081 solt(1, 12) = 0.498759700552842
t = 1.01 y(1, 13) = 0.498447466105688 solt(1, 13) = 0.498447466150466
t = 1.01 y(1, 14) = 0.496892139713705 solt(1, 14) = 0.496892139806480
t = 1.02 y(1, 15) = 0.495346489430957 solt(1, 15) = 0.495346489568598
t = 1.03 y(1, 16) = 0.493810425240584 solt(1, 16) = 0.493810425420317
t = 1.03 y(1, 17) = 0.492283858234329 solt(1, 17) = 0.492283858458242
t = 1.06 y(1, 18) = 0.486298927575074 solt(1, 18) = 0.486298930610121
t = 1.08 y(1, 19) = 0.480457774750730 solt(1, 19) = 0.480457778018775
t = 1.11 y(1, 20) = 0.474755280244699 solt(1, 20) = 0.474755281329518
t = 1.13 y(1, 21) = 0.469186560650425 solt(1, 21) = 0.469186561380908
t = 1.16 y(1, 22) = 0.463746962391487 solt(1, 22) = 0.463746965281131
t = 1.18 y(1, 23) = 0.458432050334446 solt(1, 23) = 0.458432053441849
t = 1.21 y(1, 24) = 0.453237585981165 solt(1, 24) = 0.453237587493557
t = 1.23 y(1, 25) = 0.448159517715395 solt(1, 25) = 0.448159519013310
t = 1.26 y(1, 26) = 0.443193976016892 solt(1, 26) = 0.443193979001834
t = 1.28 y(1, 27) = 0.438337264861276 solt(1, 27) = 0.438337268052509
t = 1.31 y(1, 28) = 0.433585845140192 solt(1, 28) = 0.433585847159753
t = 1.33 y(1, 29) = 0.428936327215513 solt(1, 29) = 0.428936329118789
t = 1.36 y(1, 30) = 0.424385467229209 solt(1, 30) = 0.424385470472889
t = 1.38 y(1, 31) = 0.419930160526409 solt(1, 31) = 0.419930163967858
t = 1.41 y(1, 32) = 0.415567428897678 solt(1, 32) = 0.415567431476863
t = 1.43 y(1, 33) = 0.411294414828618 solt(1, 33) = 0.411294417361768
t = 1.46 y(1, 34) = 0.407108378623935 solt(1, 34) = 0.407108382239857
t = 1.48 y(1, 35) = 0.403006693319892 solt(1, 35) = 0.403006697127373
t = 1.51 y(1, 36) = 0.398986834758927 solt(1, 36) = 0.398986837933551
t = 1.53 y(1, 37) = 0.395046377101123 solt(1, 37) = 0.395046380280916
t = 1.56 y(1, 38) = 0.391182990560570 solt(1, 38) = 0.391182994629520
t = 1.58 y(1, 39) = 0.387394437428363 solt(1, 39) = 0.387394441684496
t = 1.61 y(1, 40) = 0.383678564272245 solt(1, 40) = 0.383678568067922
t = 1.63 y(1, 41) = 0.380033298398531 solt(1, 41) = 0.380033302237407
t = 1.66 y(1, 42) = 0.376456646054061 solt(1, 42) = 0.376456650635155
t = 1.68 y(1, 43) = 0.372946689287081 solt(1, 43) = 0.372946694052444
t = 1.71 y(1, 44) = 0.369501579759482 solt(1, 44) = 0.369501584195621
t = 1.73 y(1, 45) = 0.366119535932543 solt(1, 45) = 0.366119540440676
t = 1.76 y(1, 46) = 0.362798841626564 solt(1, 46) = 0.362798846764431
t = 1.78 y(1, 47) = 0.359537843520836 solt(1, 47) = 0.359537848841237
t = 1.81 y(1, 48) = 0.356334946202538 solt(1, 48) = 0.356334951294850
t = 1.83 y(1, 49) = 0.353188609909346 solt(1, 49) = 0.353188615095897
t = 1.86 y(1, 50) = 0.350097349366490 solt(1, 50) = 0.350097355096020
t = 1.88 y(1, 51) = 0.347059731779093 solt(1, 51) = 0.347059737690377
t = 1.91 y(1, 52) = 0.344074372838724 solt(1, 52) = 0.344074378600797
t = 1.93 y(1, 53) = 0.341139934898507 solt(1, 53) = 0.341139940772368
t = 1.95 y(1, 54) = 0.339154201908466 solt(1, 54) = 0.339154207950295
t = 1.97 y(1, 55) = 0.337191452582970 solt(1, 55) = 0.337191458747018
t = 1.98 y(1, 56) = 0.335251290181761 solt(1, 56) = 0.335251296426945
```

```
t = 2.00 y(1, 57) = 0.333333326973322 solt(1, 57) = 0.333333333333333
```

```
fprintf("SECTION 11.2 6b for 4a\n");
alpha = .5;
beta = (1/3);
a = 1;
b = 2;
t0 = (beta-alpha)/(b-a);
[X, MAT] = ode45('f4a', [a b], [alpha;t0;0;1]); %solving an IVP with
 ode45
tempYB = MAT(end, 1);
t1 = t0 + (beta - tempYB)/(b-a);

soltF = @(t) ((t+1).^-1);
tol = 10^-4;
fprintf("Using Shooting method with secant method for root finding
\n");
[T Y SOLT] = ShootingMethodSecant(alpha, beta, a, b, t0, t1, tempYB,
 tol, 'f4a', soltF);
for i = 1: length(T)
   fprintf("t = %.2f y(1, %d) = %.15f solt(1, %d) = %.15f\n", T(i), i,
 Y(i), i, SOLT(i));
end
fprintf("\n\n");
```

```
SECTION 11.2 6b for 4a
Using Shooting method with secant method for root finding
Number of iterations taken = 2
t = 1.00 y(1, 1) = 0.500000000000000 solt(1, 1) = 0.500000000000000
t = 1.00 y(1, 2) = 0.499987438989769 solt(1, 2) = 0.499987440883313
t = 1.00 y(1, 3) = 0.499974878610496 solt(1, 3) = 0.499974882397536
t = 1.00 y(1, 4) = 0.499962318862133 solt(1, 4) = 0.499962324542622
t = 1.00 y(1, 5) = 0.499949759744632 solt(1, 5) = 0.499949767318521
t = 1.00 y(1, 6) = 0.499886973618397 solt(1, 6) = 0.499886990658579
t = 1.00 y(1, 7) = 0.499824203256590 solt(1, 7) = 0.499824229761877
t = 1.00 y(1, 8) = 0.499761448653273 solt(1, 8) = 0.499761484622479
t = 1.00 y(1, 9) = 0.499698709802514 solt(1, 9) = 0.499698755234452
t = 1.00 y(1, 10) = 0.499385251629563 solt(1, 10) = 0.499385344357413
t = 1.00 y(1, 11) = 0.499072186382074 solt(1, 11) = 0.499072326376325
t = 1.00 y(1, 12) = 0.498759513321589 solt(1, 12) = 0.498759700552842
t = 1.01 y(1, 13) = 0.498447231711497 solt(1, 13) = 0.498447466150466
t = 1.01 y(1, 14) = 0.496891669761381 solt(1, 14) = 0.496892139806480
t = 1.02 y(1, 15) = 0.495345784636112 solt(1, 15) = 0.495346489568598
t = 1.03 y(1, 16) = 0.493809486305368 solt(1, 16) = 0.493810425420317
t = 1.03 y(1, 17) = 0.492282685847632 solt(1, 17) = 0.492283858458242
t = 1.06 y(1, 18) = 0.486296832376120 solt(1, 18) = 0.486298930610121
t = 1.08 y(1, 19) = 0.480454766662370 solt(1, 19) = 0.480457778018775
t = 1.11 y(1, 20) = 0.474751368443430 solt(1, 20) = 0.474755281329518
t = 1.13 y(1, 21) = 0.469181753609329 solt(1, 21) = 0.469186561380908
t = 1.16 y(1, 22) = 0.463741267921601 solt(1, 22) = 0.463746965281131
t = 1.18 y(1, 23) = 0.458425475623054 solt(1, 23) = 0.458432053441849
t = 1.21 y(1, 24) = 0.453230137626127 solt(1, 24) = 0.453237587493557
```

```
t = 1.23 y(1, 25) = 0.448151201757619 solt(1, 25) = 0.448159519013310
t = 1.26 y(1, 26) = 0.443184797971626 solt(1, 26) = 0.443193979001834
t = 1.28 y(1, 27) = 0.438327229747102 solt(1, 27) = 0.438337268052509
t = 1.31 y(1, 28) = 0.433574957505218 solt(1, 28) = 0.433585847159753
t = 1.33 y(1, 29) = 0.428924591162242 solt(1, 29) = 0.428936329118789
t = 1.36 y(1, 30) = 0.424372886438509 solt(1, 30) = 0.424385470472889
t = 1.38 y(1, 31) = 0.419916738279725 solt(1, 31) = 0.419930163967858
t = 1.41 y(1, 32) = 0.415553168097259 solt(1, 32) = 0.415567431476863
t = 1.43 y(1, 33) = 0.411279318016778 solt(1, 33) = 0.411294417361768
t = 1.46 y(1, 34) = 0.407092448001630 solt(1, 34) = 0.407108382239857
t = 1.48 y(1, 35) = 0.402989930763918 solt(1, 35) = 0.403006697127373
t = 1.51 y(1, 36) = 0.398969241837717 solt(1, 36) = 0.398986837933551
t = 1.53 y(1, 37) = 0.395027955089822 solt(1, 37) = 0.395046380280916
t = 1.56 y(1, 38) = 0.391163740455577 solt(1, 38) = 0.391182994629520
t = 1.58 y(1, 39) = 0.387374359960794 solt(1, 39) = 0.387394441684496
t = 1.61 y(1, 40) = 0.383657659920381 solt(1, 40) = 0.383678568067922
t = 1.63 y(1, 41) = 0.380011567399740 solt(1, 41) = 0.380033302237407
t = 1.66 y(1, 42) = 0.376434088416290 solt(1, 42) = 0.376456650635155
t = 1.68 y(1, 43) = 0.372923304799493 solt(1, 43) = 0.372946694052444
t = 1.71 y(1, 44) = 0.369477368002356 solt(1, 44) = 0.369501584195621
t = 1.73 y(1, 45) = 0.366094496286786 solt(1, 45) = 0.366119540440676
t = 1.76 y(1, 46) = 0.362772973282879 solt(1, 46) = 0.362798846764431
t = 1.78 y(1, 47) = 0.359511145488194 solt(1, 47) = 0.359537848841237
t = 1.81 y(1, 48) = 0.356307417316119 solt(1, 48) = 0.356334951294850
t = 1.83 y(1, 49) = 0.353160248838196 solt(1, 49) = 0.353188615095897
t = 1.86 y(1, 50) = 0.350068154620889 solt(1, 50) = 0.350097355096020
t = 1.88 y(1, 51) = 0.347029701717364 solt(1, 51) = 0.347059737690377
t = 1.91 y(1, 52) = 0.344043505673650 solt(1, 52) = 0.344074378600797
t = 1.93 y(1, 53) = 0.341108228703539 solt(1, 53) = 0.341139940772368
t = 1.95 y(1, 54) = 0.339121918520918 solt(1, 54) = 0.339154207950295
t = 1.97 y(1, 55) = 0.337158590990234 solt(1, 55) = 0.337191458747018
t = 1.98 y(1, 56) = 0.335217849330775 solt(1, 56) = 0.335251296426945
t = 2.00 y(1, 57) = 0.333299305771726 solt(1, 57) = 0.333333333333333
```

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