

```

commandwindow
clear
clc
close all
syms t
d = (1.5*(exp(-0.75*t))) * sin(0.85*t) + (0.375*t)
tn = (0 : 0.01 : 2.5)
yp = diff(d)
yn = subs(yp,tn)
figure(1)
plot(tn,yn)
xlabel('time (mins)')
ylabel('velocity (m/s)')
grid on
grid minor
dp = diff(yp)
lpn = subs(dp,tn)
figure(2)
plot(tn,lpn)
xlabel('time (mins)')
ylabel('acceleration m/s^2')
grid on
grid minor
figure(3)
plot(tn,yn,tn,lpn)
ylabel('variable')
xlabel('time (mins)')
legend {'velocity (m/s)', 'acceleration (ms/^2)'}
axis tight
grid on
grid minor

```

d =

$$(3*t)/8 + (3*\sin((17*t)/20)*\exp(-(3*t)/4))/2$$

tn =

Columns 1 through 12

0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600 0.0700 0.0800 0.0900 0.1000
0.1100

Columns 13 through 24

0.1200 0.1300 0.1400 0.1500 0.1600 0.1700 0.1800 0.1900 0.2000 0.2100 0.2200
0.2300

Columns 25 through 36

0.2400 0.2500 0.2600 0.2700 0.2800 0.2900 0.3000 0.3100 0.3200 0.3300 0.3400
0.3500

Columns 37 through 48

0.3600 0.3700 0.3800 0.3900 0.4000 0.4100 0.4200 0.4300 0.4400 0.4500 0.4600
0.4700

Columns 49 through 60

0.4800 0.4900 0.5000 0.5100 0.5200 0.5300 0.5400 0.5500 0.5600 0.5700 0.5800
0.5900

Columns 61 through 72

0.6000 0.6100 0.6200 0.6300 0.6400 0.6500 0.6600 0.6700 0.6800 0.6900 0.7000
0.7100

Columns 73 through 84

0.7200 0.7300 0.7400 0.7500 0.7600 0.7700 0.7800 0.7900 0.8000 0.8100 0.8200
0.8300

Columns 85 through 96

0.8400 0.8500 0.8600 0.8700 0.8800 0.8900 0.9000 0.9100 0.9200 0.9300 0.9400
0.9500

Columns 97 through 108

0.9600 0.9700 0.9800 0.9900 1.0000 1.0100 1.0200 1.0300 1.0400 1.0500 1.0600
1.0700

Columns 109 through 120

1.0800 1.0900 1.1000 1.1100 1.1200 1.1300 1.1400 1.1500 1.1600 1.1700 1.1800
1.1900

Columns 121 through 132

1.2000 1.2100 1.2200 1.2300 1.2400 1.2500 1.2600 1.2700 1.2800 1.2900 1.3000
1.3100

Columns 133 through 144

1.3200 1.3300 1.3400 1.3500 1.3600 1.3700 1.3800 1.3900 1.4000 1.4100 1.4200
1.4300

Columns 145 through 156

1.4400 1.4500 1.4600 1.4700 1.4800 1.4900 1.5000 1.5100 1.5200 1.5300 1.5400
1.5500

Columns 157 through 168

1.5600 1.5700 1.5800 1.5900 1.6000 1.6100 1.6200 1.6300 1.6400 1.6500 1.6600
1.6700

Columns 169 through 180

1.6800 1.6900 1.7000 1.7100 1.7200 1.7300 1.7400 1.7500 1.7600 1.7700 1.7800
1.7900

Columns 181 through 192

1.8000 1.8100 1.8200 1.8300 1.8400 1.8500 1.8600 1.8700 1.8800 1.8900 1.9000
1.9100

Columns 193 through 204

1.9200 1.9300 1.9400 1.9500 1.9600 1.9700 1.9800 1.9900 2.0000 2.0100 2.0200
2.0300

Columns 205 through 216

2.0400 2.0500 2.0600 2.0700 2.0800 2.0900 2.1000 2.1100 2.1200 2.1300 2.1400
2.1500

Columns 217 through 228

2.1600 2.1700 2.1800 2.1900 2.2000 2.2100 2.2200 2.2300 2.2400 2.2500 2.2600
2.2700

Columns 229 through 240

2.2800 2.2900 2.3000 2.3100 2.3200 2.3300 2.3400 2.3500 2.3600 2.3700 2.3800
2.3900

Columns 241 through 251

2.4000 2.4100 2.4200 2.4300 2.4400 2.4500 2.4600 2.4700 2.4800 2.4900 2.5000

$y_p =$

$$(51 \cdot \cos((17 \cdot t)/20) \cdot \exp(-(3 \cdot t)/4))/40 - (9 \cdot \sin((17 \cdot t)/20) \cdot \exp(-(3 \cdot t)/4))/8 + 3/8$$

$y_n =$

$[33/20, (51*\cos(17/2000)*\exp(-3/400))/40 - (9*\exp(-3/400)*\sin(17/2000))/8 + 3/8,$
 $(51*\cos(17/1000)*\exp(-3/200))/40 - (9*\exp(-3/200)*\sin(17/1000))/8 + 3/8, (51*\cos(51/2000)*\exp(-$
 $9/400))/40 - (9*\exp(-9/400)*\sin(51/2000))/8 + 3/8, (51*\cos(17/500)*\exp(-3/100))/40 - (9*\exp(-$
 $3/100)*\sin(17/500))/8 + 3/8, (51*\cos(17/400)*\exp(-3/80))/40 - (9*\exp(-3/80)*\sin(17/400))/8 + 3/8,$
 $(51*\cos(51/1000)*\exp(-9/200))/40 - (9*\exp(-9/200)*\sin(51/1000))/8 + 3/8, (51*\cos(119/2000)*\exp(-$
 $21/400))/40 - (9*\exp(-21/400)*\sin(119/2000))/8 + 3/8, (51*\cos(17/250)*\exp(-3/50))/40 - (9*\exp(-$
 $3/50)*\sin(17/250))/8 + 3/8, (51*\cos(153/2000)*\exp(-27/400))/40 - (9*\exp(-27/400)*\sin(153/2000))/8 +$
 $3/8, (51*\cos(17/200)*\exp(-3/40))/40 - (9*\exp(-3/40)*\sin(17/200))/8 + 3/8, (51*\cos(187/2000)*\exp(-$
 $33/400))/40 - (9*\exp(-33/400)*\sin(187/2000))/8 + 3/8, (51*\cos(51/500)*\exp(-9/100))/40 - (9*\exp(-$
 $9/100)*\sin(51/500))/8 + 3/8, (51*\cos(221/2000)*\exp(-39/400))/40 - (9*\exp(-39/400)*\sin(221/2000))/8$
 $+ 3/8, (51*\cos(119/1000)*\exp(-21/200))/40 - (9*\exp(-21/200)*\sin(119/1000))/8 + 3/8,$
 $(51*\cos(51/400)*\exp(-9/80))/40 - (9*\exp(-9/80)*\sin(51/400))/8 + 3/8, (51*\cos(17/125)*\exp(-3/25))/40 -$
 $(9*\exp(-3/25)*\sin(17/125))/8 + 3/8, (51*\cos(289/2000)*\exp(-51/400))/40 - (9*\exp(-$
 $51/400)*\sin(289/2000))/8 + 3/8, (51*\cos(153/1000)*\exp(-27/200))/40 - (9*\exp(-$
 $27/200)*\sin(153/1000))/8 + 3/8, (51*\cos(323/2000)*\exp(-57/400))/40 - (9*\exp(-$
 $57/400)*\sin(323/2000))/8 + 3/8, (51*\cos(17/100)*\exp(-3/20))/40 - (9*\exp(-3/20)*\sin(17/100))/8 + 3/8,$
 $(51*\cos(357/2000)*\exp(-63/400))/40 - (9*\exp(-63/400)*\sin(357/2000))/8 + 3/8,$
 $(51*\cos(187/1000)*\exp(-33/200))/40 - (9*\exp(-33/200)*\sin(187/1000))/8 + 3/8,$
 $(51*\cos(391/2000)*\exp(-69/400))/40 - (9*\exp(-69/400)*\sin(391/2000))/8 + 3/8, (51*\cos(51/250)*\exp(-$
 $9/50))/40 - (9*\exp(-9/50)*\sin(51/250))/8 + 3/8, (51*\cos(17/80)*\exp(-3/16))/40 - (9*\exp(-$
 $3/16)*\sin(17/80))/8 + 3/8, (51*\cos(221/1000)*\exp(-39/200))/40 - (9*\exp(-39/200)*\sin(221/1000))/8 +$
 $3/8, (51*\cos(459/2000)*\exp(-81/400))/40 - (9*\exp(-81/400)*\sin(459/2000))/8 + 3/8,$
 $(51*\cos(119/500)*\exp(-21/100))/40 - (9*\exp(-21/100)*\sin(119/500))/8 + 3/8, (51*\cos(493/2000)*\exp(-$
 $87/400))/40 - (9*\exp(-87/400)*\sin(493/2000))/8 + 3/8, (51*\cos(51/200)*\exp(-9/40))/40 - (9*\exp(-$
 $9/40)*\sin(51/200))/8 + 3/8, (51*\cos(527/2000)*\exp(-93/400))/40 - (9*\exp(-93/400)*\sin(527/2000))/8 +$
 $3/8, (51*\cos(34/125)*\exp(-6/25))/40 - (9*\exp(-6/25)*\sin(34/125))/8 + 3/8, (51*\cos(561/2000)*\exp(-$
 $99/400))/40 - (9*\exp(-99/400)*\sin(561/2000))/8 + 3/8, (51*\cos(289/1000)*\exp(-51/200))/40 - (9*\exp(-$
 $51/200)*\sin(289/1000))/8 + 3/8, (51*\cos(119/400)*\exp(-21/80))/40 - (9*\exp(-21/80)*\sin(119/400))/8 +$
 $3/8, (51*\cos(153/500)*\exp(-27/100))/40 - (9*\exp(-27/100)*\sin(153/500))/8 + 3/8,$
 $(51*\cos(629/2000)*\exp(-111/400))/40 - (9*\exp(-111/400)*\sin(629/2000))/8 + 3/8,$
 $(51*\cos(323/1000)*\exp(-57/200))/40 - (9*\exp(-57/200)*\sin(323/1000))/8 + 3/8,$
 $(51*\cos(663/2000)*\exp(-117/400))/40 - (9*\exp(-117/400)*\sin(663/2000))/8 + 3/8, (51*\cos(17/50)*\exp(-$
 $3/10))/40 - (9*\exp(-3/10)*\sin(17/50))/8 + 3/8, (51*\cos(697/2000)*\exp(-123/400))/40 - (9*\exp(-$
 $123/400)*\sin(697/2000))/8 + 3/8, (51*\cos(357/1000)*\exp(-63/200))/40 - (9*\exp(-$
 $63/200)*\sin(357/1000))/8 + 3/8, (51*\cos(731/2000)*\exp(-129/400))/40 - (9*\exp(-$
 $129/400)*\sin(731/2000))/8 + 3/8, (51*\cos(187/500)*\exp(-33/100))/40 - (9*\exp(-$
 $33/100)*\sin(187/500))/8 + 3/8, (51*\cos(153/400)*\exp(-27/80))/40 - (9*\exp(-27/80)*\sin(153/400))/8 +$
 $3/8, (51*\cos(391/1000)*\exp(-69/200))/40 - (9*\exp(-69/200)*\sin(391/1000))/8 + 3/8,$
 $(51*\cos(799/2000)*\exp(-141/400))/40 - (9*\exp(-141/400)*\sin(799/2000))/8 + 3/8,$
 $(51*\cos(51/125)*\exp(-9/25))/40 - (9*\exp(-9/25)*\sin(51/125))/8 + 3/8, (51*\cos(833/2000)*\exp(-$
 $147/400))/40 - (9*\exp(-147/400)*\sin(833/2000))/8 + 3/8, (51*\cos(17/40)*\exp(-3/8))/40 - (9*\exp(-$
 $3/8)*\sin(17/40))/8 + 3/8, (51*\cos(867/2000)*\exp(-153/400))/40 - (9*\exp(-153/400)*\sin(867/2000))/8 +$

$3/8, (51*\cos(221/500)*\exp(-39/100))/40 - (9*\exp(-39/100)*\sin(221/500))/8 + 3/8,$
 $(51*\cos(901/2000)*\exp(-159/400))/40 - (9*\exp(-159/400)*\sin(901/2000))/8 + 3/8,$
 $(51*\cos(459/1000)*\exp(-81/200))/40 - (9*\exp(-81/200)*\sin(459/1000))/8 + 3/8, (51*\cos(187/400)*\exp(-$
 $33/80))/40 - (9*\exp(-33/80)*\sin(187/400))/8 + 3/8, (51*\cos(119/250)*\exp(-21/50))/40 - (9*\exp(-$
 $21/50)*\sin(119/250))/8 + 3/8, (51*\cos(969/2000)*\exp(-171/400))/40 - (9*\exp(-$
 $171/400)*\sin(969/2000))/8 + 3/8, (51*\cos(493/1000)*\exp(-87/200))/40 - (9*\exp(-$
 $87/200)*\sin(493/1000))/8 + 3/8, (51*\cos(1003/2000)*\exp(-177/400))/40 - (9*\exp(-$
 $177/400)*\sin(1003/2000))/8 + 3/8, (51*\cos(51/100)*\exp(-9/20))/40 - (9*\exp(-9/20)*\sin(51/100))/8 +$
 $3/8, (51*\cos(1037/2000)*\exp(-183/400))/40 - (9*\exp(-183/400)*\sin(1037/2000))/8 + 3/8,$
 $(51*\cos(527/1000)*\exp(-93/200))/40 - (9*\exp(-93/200)*\sin(527/1000))/8 + 3/8,$
 $(51*\cos(1071/2000)*\exp(-189/400))/40 - (9*\exp(-189/400)*\sin(1071/2000))/8 + 3/8,$
 $(51*\cos(68/125)*\exp(-12/25))/40 - (9*\exp(-12/25)*\sin(68/125))/8 + 3/8, (51*\cos(221/400)*\exp(-$
 $39/80))/40 - (9*\exp(-39/80)*\sin(221/400))/8 + 3/8, (51*\cos(561/1000)*\exp(-99/200))/40 - (9*\exp(-$
 $99/200)*\sin(561/1000))/8 + 3/8, (51*\cos(1139/2000)*\exp(-201/400))/40 - (9*\exp(-$
 $201/400)*\sin(1139/2000))/8 + 3/8, (51*\cos(289/500)*\exp(-51/100))/40 - (9*\exp(-$
 $51/100)*\sin(289/500))/8 + 3/8, (51*\cos(1173/2000)*\exp(-207/400))/40 - (9*\exp(-$
 $207/400)*\sin(1173/2000))/8 + 3/8, (51*\cos(119/200)*\exp(-21/40))/40 - (9*\exp(-21/40)*\sin(119/200))/8$
 $+ 3/8, (51*\cos(1207/2000)*\exp(-213/400))/40 - (9*\exp(-213/400)*\sin(1207/2000))/8 + 3/8,$
 $(51*\cos(153/250)*\exp(-27/50))/40 - (9*\exp(-27/50)*\sin(153/250))/8 + 3/8, (51*\cos(1241/2000)*\exp(-$
 $219/400))/40 - (9*\exp(-219/400)*\sin(1241/2000))/8 + 3/8, (51*\cos(629/1000)*\exp(-111/200))/40 -$
 $(9*\exp(-111/200)*\sin(629/1000))/8 + 3/8, (51*\cos(51/80)*\exp(-9/16))/40 - (9*\exp(-9/16)*\sin(51/80))/8$
 $+ 3/8, (51*\cos(323/500)*\exp(-57/100))/40 - (9*\exp(-57/100)*\sin(323/500))/8 + 3/8,$
 $(51*\cos(1309/2000)*\exp(-231/400))/40 - (9*\exp(-231/400)*\sin(1309/2000))/8 + 3/8,$
 $(51*\cos(663/1000)*\exp(-117/200))/40 - (9*\exp(-117/200)*\sin(663/1000))/8 + 3/8,$
 $(51*\cos(1343/2000)*\exp(-237/400))/40 - (9*\exp(-237/400)*\sin(1343/2000))/8 + 3/8,$
 $(51*\cos(17/25)*\exp(-3/5))/40 - (9*\exp(-3/5)*\sin(17/25))/8 + 3/8, (51*\cos(1377/2000)*\exp(-$
 $243/400))/40 - (9*\exp(-243/400)*\sin(1377/2000))/8 + 3/8, (51*\cos(697/1000)*\exp(-123/200))/40 -$
 $(9*\exp(-123/200)*\sin(697/1000))/8 + 3/8, (51*\cos(1411/2000)*\exp(-249/400))/40 - (9*\exp(-$
 $249/400)*\sin(1411/2000))/8 + 3/8, (51*\cos(357/500)*\exp(-63/100))/40 - (9*\exp(-$
 $63/100)*\sin(357/500))/8 + 3/8, (51*\cos(289/400)*\exp(-51/80))/40 - (9*\exp(-51/80)*\sin(289/400))/8 +$
 $3/8, (51*\cos(731/1000)*\exp(-129/200))/40 - (9*\exp(-129/200)*\sin(731/1000))/8 + 3/8,$
 $(51*\cos(1479/2000)*\exp(-261/400))/40 - (9*\exp(-261/400)*\sin(1479/2000))/8 + 3/8,$
 $(51*\cos(187/250)*\exp(-33/50))/40 - (9*\exp(-33/50)*\sin(187/250))/8 + 3/8, (51*\cos(1513/2000)*\exp(-$
 $267/400))/40 - (9*\exp(-267/400)*\sin(1513/2000))/8 + 3/8, (51*\cos(153/200)*\exp(-27/40))/40 - (9*\exp(-$
 $27/40)*\sin(153/200))/8 + 3/8, (51*\cos(1547/2000)*\exp(-273/400))/40 - (9*\exp(-$
 $273/400)*\sin(1547/2000))/8 + 3/8, (51*\cos(391/500)*\exp(-69/100))/40 - (9*\exp(-$
 $69/100)*\sin(391/500))/8 + 3/8, (51*\cos(1581/2000)*\exp(-279/400))/40 - (9*\exp(-$
 $279/400)*\sin(1581/2000))/8 + 3/8, (51*\cos(799/1000)*\exp(-141/200))/40 - (9*\exp(-$
 $141/200)*\sin(799/1000))/8 + 3/8, (51*\cos(323/400)*\exp(-57/80))/40 - (9*\exp(-57/80)*\sin(323/400))/8$
 $+ 3/8, (51*\cos(102/125)*\exp(-18/25))/40 - (9*\exp(-18/25)*\sin(102/125))/8 + 3/8,$
 $(51*\cos(1649/2000)*\exp(-291/400))/40 - (9*\exp(-291/400)*\sin(1649/2000))/8 + 3/8,$
 $(51*\cos(833/1000)*\exp(-147/200))/40 - (9*\exp(-147/200)*\sin(833/1000))/8 + 3/8,$

$(51 \cdot \cos(1683/2000) \cdot \exp(-297/400))/40 - (9 \cdot \exp(-297/400) \cdot \sin(1683/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/20) \cdot \exp(-3/4))/40 - (9 \cdot \exp(-3/4) \cdot \sin(17/20))/8 + 3/8, (51 \cdot \cos(1717/2000) \cdot \exp(-303/400))/40 - (9 \cdot \exp(-303/400) \cdot \sin(1717/2000))/8 + 3/8, (51 \cdot \cos(867/1000) \cdot \exp(-153/200))/40 - (9 \cdot \exp(-153/200) \cdot \sin(867/1000))/8 + 3/8, (51 \cdot \cos(1751/2000) \cdot \exp(-309/400))/40 - (9 \cdot \exp(-309/400) \cdot \sin(1751/2000))/8 + 3/8, (51 \cdot \cos(221/250) \cdot \exp(-39/50))/40 - (9 \cdot \exp(-39/50) \cdot \sin(221/250))/8 + 3/8, (51 \cdot \cos(357/400) \cdot \exp(-63/80))/40 - (9 \cdot \exp(-63/80) \cdot \sin(357/400))/8 + 3/8, (51 \cdot \cos(901/1000) \cdot \exp(-159/200))/40 - (9 \cdot \exp(-159/200) \cdot \sin(901/1000))/8 + 3/8, (51 \cdot \cos(1819/2000) \cdot \exp(-321/400))/40 - (9 \cdot \exp(-321/400) \cdot \sin(1819/2000))/8 + 3/8, (51 \cdot \cos(459/500) \cdot \exp(-81/100))/40 - (9 \cdot \exp(-81/100) \cdot \sin(459/500))/8 + 3/8, (51 \cdot \cos(1853/2000) \cdot \exp(-327/400))/40 - (9 \cdot \exp(-327/400) \cdot \sin(1853/2000))/8 + 3/8, (51 \cdot \cos(187/200) \cdot \exp(-33/40))/40 - (9 \cdot \exp(-33/40) \cdot \sin(187/200))/8 + 3/8, (51 \cdot \cos(1887/2000) \cdot \exp(-333/400))/40 - (9 \cdot \exp(-333/400) \cdot \sin(1887/2000))/8 + 3/8, (51 \cdot \cos(119/125) \cdot \exp(-21/25))/40 - (9 \cdot \exp(-21/25) \cdot \sin(119/125))/8 + 3/8, (51 \cdot \cos(1921/2000) \cdot \exp(-339/400))/40 - (9 \cdot \exp(-339/400) \cdot \sin(1921/2000))/8 + 3/8, (51 \cdot \cos(969/1000) \cdot \exp(-171/200))/40 - (9 \cdot \exp(-171/200) \cdot \sin(969/1000))/8 + 3/8, (51 \cdot \cos(391/400) \cdot \exp(-69/80))/40 - (9 \cdot \exp(-69/80) \cdot \sin(391/400))/8 + 3/8, (51 \cdot \cos(493/500) \cdot \exp(-87/100))/40 - (9 \cdot \exp(-87/100) \cdot \sin(493/500))/8 + 3/8, (51 \cdot \cos(1989/2000) \cdot \exp(-351/400))/40 - (9 \cdot \exp(-351/400) \cdot \sin(1989/2000))/8 + 3/8, (51 \cdot \cos(1003/1000) \cdot \exp(-177/200))/40 - (9 \cdot \exp(-177/200) \cdot \sin(1003/1000))/8 + 3/8, (51 \cdot \cos(2023/2000) \cdot \exp(-357/400))/40 - (9 \cdot \exp(-357/400) \cdot \sin(2023/2000))/8 + 3/8, (51 \cdot \cos(51/50) \cdot \exp(-9/10))/40 - (9 \cdot \exp(-9/10) \cdot \sin(51/50))/8 + 3/8, (51 \cdot \cos(2057/2000) \cdot \exp(-363/400))/40 - (9 \cdot \exp(-363/400) \cdot \sin(2057/2000))/8 + 3/8, (51 \cdot \cos(1037/1000) \cdot \exp(-183/200))/40 - (9 \cdot \exp(-183/200) \cdot \sin(1037/1000))/8 + 3/8, (51 \cdot \cos(2091/2000) \cdot \exp(-369/400))/40 - (9 \cdot \exp(-369/400) \cdot \sin(2091/2000))/8 + 3/8, (51 \cdot \cos(527/500) \cdot \exp(-93/100))/40 - (9 \cdot \exp(-93/100) \cdot \sin(527/500))/8 + 3/8, (51 \cdot \cos(17/16) \cdot \exp(-15/16))/40 - (9 \cdot \exp(-15/16) \cdot \sin(17/16))/8 + 3/8, (51 \cdot \cos(1071/1000) \cdot \exp(-189/200))/40 - (9 \cdot \exp(-189/200) \cdot \sin(1071/1000))/8 + 3/8, (51 \cdot \cos(2159/2000) \cdot \exp(-381/400))/40 - (9 \cdot \exp(-381/400) \cdot \sin(2159/2000))/8 + 3/8, (51 \cdot \cos(136/125) \cdot \exp(-24/25))/40 - (9 \cdot \exp(-24/25) \cdot \sin(136/125))/8 + 3/8, (51 \cdot \cos(2193/2000) \cdot \exp(-387/400))/40 - (9 \cdot \exp(-387/400) \cdot \sin(2193/2000))/8 + 3/8, (51 \cdot \cos(221/200) \cdot \exp(-39/40))/40 - (9 \cdot \exp(-39/40) \cdot \sin(221/200))/8 + 3/8, (51 \cdot \cos(2227/2000) \cdot \exp(-393/400))/40 - (9 \cdot \exp(-393/400) \cdot \sin(2227/2000))/8 + 3/8, (51 \cdot \cos(561/500) \cdot \exp(-99/100))/40 - (9 \cdot \exp(-99/100) \cdot \sin(561/500))/8 + 3/8, (51 \cdot \cos(2261/2000) \cdot \exp(-399/400))/40 - (9 \cdot \exp(-399/400) \cdot \sin(2261/2000))/8 + 3/8, (51 \cdot \cos(1139/1000) \cdot \exp(-201/200))/40 - (9 \cdot \exp(-201/200) \cdot \sin(1139/1000))/8 + 3/8, (51 \cdot \cos(459/400) \cdot \exp(-81/80))/40 - (9 \cdot \exp(-81/80) \cdot \sin(459/400))/8 + 3/8, (51 \cdot \cos(289/250) \cdot \exp(-51/50))/40 - (9 \cdot \exp(-51/50) \cdot \sin(289/250))/8 + 3/8, (51 \cdot \cos(2329/2000) \cdot \exp(-411/400))/40 - (9 \cdot \exp(-411/400) \cdot \sin(2329/2000))/8 + 3/8, (51 \cdot \cos(1173/1000) \cdot \exp(-207/200))/40 - (9 \cdot \exp(-207/200) \cdot \sin(1173/1000))/8 + 3/8, (51 \cdot \cos(2363/2000) \cdot \exp(-417/400))/40 - (9 \cdot \exp(-417/400) \cdot \sin(2363/2000))/8 + 3/8, (51 \cdot \cos(119/100) \cdot \exp(-21/20))/40 - (9 \cdot \exp(-21/20) \cdot \sin(119/100))/8 + 3/8, (51 \cdot \cos(2397/2000) \cdot \exp(-423/400))/40 - (9 \cdot \exp(-423/400) \cdot \sin(2397/2000))/8 + 3/8, (51 \cdot \cos(1207/1000) \cdot \exp(-213/200))/40 - (9 \cdot \exp(-213/200) \cdot \sin(1207/1000))/8 + 3/8, (51 \cdot \cos(2431/2000) \cdot \exp(-429/400))/40 - (9 \cdot \exp(-429/400) \cdot \sin(2431/2000))/8 + 3/8, (51 \cdot \cos(153/125) \cdot \exp(-27/25))/40 - (9 \cdot \exp(-27/25) \cdot \sin(153/125))/8 + 3/8, (51 \cdot \cos(493/400) \cdot \exp(-87/80))/40 - (9 \cdot \exp(-87/80) \cdot \sin(493/400))/8 + 3/8, (51 \cdot \cos(1241/1000) \cdot \exp(-219/200))/40 - (9 \cdot \exp(-219/200) \cdot \sin(1241/1000))/8 + 3/8,$

$(51 \cdot \cos(2499/2000) \cdot \exp(-441/400))/40 - (9 \cdot \exp(-441/400) \cdot \sin(2499/2000))/8 + 3/8,$
 $(51 \cdot \cos(629/500) \cdot \exp(-111/100))/40 - (9 \cdot \exp(-111/100) \cdot \sin(629/500))/8 + 3/8,$
 $(51 \cdot \cos(2533/2000) \cdot \exp(-447/400))/40 - (9 \cdot \exp(-447/400) \cdot \sin(2533/2000))/8 + 3/8,$
 $(51 \cdot \cos(51/40) \cdot \exp(-9/8))/40 - (9 \cdot \exp(-9/8) \cdot \sin(51/40))/8 + 3/8, (51 \cdot \cos(2567/2000) \cdot \exp(-$
 $453/400))/40 - (9 \cdot \exp(-453/400) \cdot \sin(2567/2000))/8 + 3/8, (51 \cdot \cos(323/250) \cdot \exp(-57/50))/40 - (9 \cdot \exp(-$
 $57/50) \cdot \sin(323/250))/8 + 3/8, (51 \cdot \cos(2601/2000) \cdot \exp(-459/400))/40 - (9 \cdot \exp(-$
 $459/400) \cdot \sin(2601/2000))/8 + 3/8, (51 \cdot \cos(1309/1000) \cdot \exp(-231/200))/40 - (9 \cdot \exp(-$
 $231/200) \cdot \sin(1309/1000))/8 + 3/8, (51 \cdot \cos(527/400) \cdot \exp(-93/80))/40 - (9 \cdot \exp(-93/80) \cdot \sin(527/400))/8$
 $+ 3/8, (51 \cdot \cos(663/500) \cdot \exp(-117/100))/40 - (9 \cdot \exp(-117/100) \cdot \sin(663/500))/8 + 3/8,$
 $(51 \cdot \cos(2669/2000) \cdot \exp(-471/400))/40 - (9 \cdot \exp(-471/400) \cdot \sin(2669/2000))/8 + 3/8,$
 $(51 \cdot \cos(1343/1000) \cdot \exp(-237/200))/40 - (9 \cdot \exp(-237/200) \cdot \sin(1343/1000))/8 + 3/8,$
 $(51 \cdot \cos(2703/2000) \cdot \exp(-477/400))/40 - (9 \cdot \exp(-477/400) \cdot \sin(2703/2000))/8 + 3/8,$
 $(51 \cdot \cos(34/25) \cdot \exp(-6/5))/40 - (9 \cdot \exp(-6/5) \cdot \sin(34/25))/8 + 3/8, (51 \cdot \cos(2737/2000) \cdot \exp(-$
 $483/400))/40 - (9 \cdot \exp(-483/400) \cdot \sin(2737/2000))/8 + 3/8, (51 \cdot \cos(1377/1000) \cdot \exp(-243/200))/40 -$
 $(9 \cdot \exp(-243/200) \cdot \sin(1377/1000))/8 + 3/8, (51 \cdot \cos(2771/2000) \cdot \exp(-489/400))/40 - (9 \cdot \exp(-$
 $489/400) \cdot \sin(2771/2000))/8 + 3/8, (51 \cdot \cos(697/500) \cdot \exp(-123/100))/40 - (9 \cdot \exp(-$
 $123/100) \cdot \sin(697/500))/8 + 3/8, (51 \cdot \cos(561/400) \cdot \exp(-99/80))/40 - (9 \cdot \exp(-99/80) \cdot \sin(561/400))/8 +$
 $3/8, (51 \cdot \cos(1411/1000) \cdot \exp(-249/200))/40 - (9 \cdot \exp(-249/200) \cdot \sin(1411/1000))/8 + 3/8,$
 $(51 \cdot \cos(2839/2000) \cdot \exp(-501/400))/40 - (9 \cdot \exp(-501/400) \cdot \sin(2839/2000))/8 + 3/8,$
 $(51 \cdot \cos(357/250) \cdot \exp(-63/50))/40 - (9 \cdot \exp(-63/50) \cdot \sin(357/250))/8 + 3/8, (51 \cdot \cos(2873/2000) \cdot \exp(-$
 $507/400))/40 - (9 \cdot \exp(-507/400) \cdot \sin(2873/2000))/8 + 3/8, (51 \cdot \cos(289/200) \cdot \exp(-51/40))/40 - (9 \cdot \exp(-$
 $51/40) \cdot \sin(289/200))/8 + 3/8, (51 \cdot \cos(2907/2000) \cdot \exp(-513/400))/40 - (9 \cdot \exp(-$
 $513/400) \cdot \sin(2907/2000))/8 + 3/8, (51 \cdot \cos(731/500) \cdot \exp(-129/100))/40 - (9 \cdot \exp(-$
 $129/100) \cdot \sin(731/500))/8 + 3/8, (51 \cdot \cos(2941/2000) \cdot \exp(-519/400))/40 - (9 \cdot \exp(-$
 $519/400) \cdot \sin(2941/2000))/8 + 3/8, (51 \cdot \cos(1479/1000) \cdot \exp(-261/200))/40 - (9 \cdot \exp(-$
 $261/200) \cdot \sin(1479/1000))/8 + 3/8, (51 \cdot \cos(119/80) \cdot \exp(-21/16))/40 - (9 \cdot \exp(-21/16) \cdot \sin(119/80))/8 +$
 $3/8, (51 \cdot \cos(187/125) \cdot \exp(-33/25))/40 - (9 \cdot \exp(-33/25) \cdot \sin(187/125))/8 + 3/8,$
 $(51 \cdot \cos(3009/2000) \cdot \exp(-531/400))/40 - (9 \cdot \exp(-531/400) \cdot \sin(3009/2000))/8 + 3/8,$
 $(51 \cdot \cos(1513/1000) \cdot \exp(-267/200))/40 - (9 \cdot \exp(-267/200) \cdot \sin(1513/1000))/8 + 3/8,$
 $(51 \cdot \cos(3043/2000) \cdot \exp(-537/400))/40 - (9 \cdot \exp(-537/400) \cdot \sin(3043/2000))/8 + 3/8,$
 $(51 \cdot \cos(153/100) \cdot \exp(-27/20))/40 - (9 \cdot \exp(-27/20) \cdot \sin(153/100))/8 + 3/8, (51 \cdot \cos(3077/2000) \cdot \exp(-$
 $543/400))/40 - (9 \cdot \exp(-543/400) \cdot \sin(3077/2000))/8 + 3/8, (51 \cdot \cos(1547/1000) \cdot \exp(-273/200))/40 -$
 $(9 \cdot \exp(-273/200) \cdot \sin(1547/1000))/8 + 3/8, (51 \cdot \cos(3111/2000) \cdot \exp(-549/400))/40 - (9 \cdot \exp(-$
 $549/400) \cdot \sin(3111/2000))/8 + 3/8, (51 \cdot \cos(391/250) \cdot \exp(-69/50))/40 - (9 \cdot \exp(-69/50) \cdot \sin(391/250))/8$
 $+ 3/8, (51 \cdot \cos(629/400) \cdot \exp(-111/80))/40 - (9 \cdot \exp(-111/80) \cdot \sin(629/400))/8 + 3/8,$
 $(51 \cdot \cos(1581/1000) \cdot \exp(-279/200))/40 - (9 \cdot \exp(-279/200) \cdot \sin(1581/1000))/8 + 3/8,$
 $(51 \cdot \cos(3179/2000) \cdot \exp(-561/400))/40 - (9 \cdot \exp(-561/400) \cdot \sin(3179/2000))/8 + 3/8,$
 $(51 \cdot \cos(799/500) \cdot \exp(-141/100))/40 - (9 \cdot \exp(-141/100) \cdot \sin(799/500))/8 + 3/8,$
 $(51 \cdot \cos(3213/2000) \cdot \exp(-567/400))/40 - (9 \cdot \exp(-567/400) \cdot \sin(3213/2000))/8 + 3/8,$
 $(51 \cdot \cos(323/200) \cdot \exp(-57/40))/40 - (9 \cdot \exp(-57/40) \cdot \sin(323/200))/8 + 3/8, (51 \cdot \cos(3247/2000) \cdot \exp(-$
 $573/400))/40 - (9 \cdot \exp(-573/400) \cdot \sin(3247/2000))/8 + 3/8, (51 \cdot \cos(204/125) \cdot \exp(-36/25))/40 - (9 \cdot \exp(-$
 $36/25) \cdot \sin(204/125))/8 + 3/8, (51 \cdot \cos(3281/2000) \cdot \exp(-579/400))/40 - (9 \cdot \exp(-$

$(579/400) \cdot \sin(3281/2000))/8 + 3/8, (51 \cdot \cos(1649/1000) \cdot \exp(-291/200))/40 - (9 \cdot \exp(-291/200) \cdot \sin(1649/1000))/8 + 3/8, (51 \cdot \cos(663/400) \cdot \exp(-117/80))/40 - (9 \cdot \exp(-117/80) \cdot \sin(663/400))/8 + 3/8, (51 \cdot \cos(833/500) \cdot \exp(-147/100))/40 - (9 \cdot \exp(-147/100) \cdot \sin(833/500))/8 + 3/8, (51 \cdot \cos(3349/2000) \cdot \exp(-591/400))/40 - (9 \cdot \exp(-591/400) \cdot \sin(3349/2000))/8 + 3/8, (51 \cdot \cos(1683/1000) \cdot \exp(-297/200))/40 - (9 \cdot \exp(-297/200) \cdot \sin(1683/1000))/8 + 3/8, (51 \cdot \cos(3383/2000) \cdot \exp(-597/400))/40 - (9 \cdot \exp(-597/400) \cdot \sin(3383/2000))/8 + 3/8, (51 \cdot \cos(17/10) \cdot \exp(-3/2))/40 - (9 \cdot \exp(-3/2) \cdot \sin(17/10))/8 + 3/8, (51 \cdot \cos(3417/2000) \cdot \exp(-603/400))/40 - (9 \cdot \exp(-603/400) \cdot \sin(3417/2000))/8 + 3/8, (51 \cdot \cos(1717/1000) \cdot \exp(-303/200))/40 - (9 \cdot \exp(-303/200) \cdot \sin(1717/1000))/8 + 3/8, (51 \cdot \cos(3451/2000) \cdot \exp(-609/400))/40 - (9 \cdot \exp(-609/400) \cdot \sin(3451/2000))/8 + 3/8, (51 \cdot \cos(867/500) \cdot \exp(-153/100))/40 - (9 \cdot \exp(-153/100) \cdot \sin(867/500))/8 + 3/8, (51 \cdot \cos(697/400) \cdot \exp(-123/80))/40 - (9 \cdot \exp(-123/80) \cdot \sin(697/400))/8 + 3/8, (51 \cdot \cos(1751/1000) \cdot \exp(-309/200))/40 - (9 \cdot \exp(-309/200) \cdot \sin(1751/1000))/8 + 3/8, (51 \cdot \cos(3519/2000) \cdot \exp(-621/400))/40 - (9 \cdot \exp(-621/400) \cdot \sin(3519/2000))/8 + 3/8, (51 \cdot \cos(221/125) \cdot \exp(-39/25))/40 - (9 \cdot \exp(-39/25) \cdot \sin(221/125))/8 + 3/8, (51 \cdot \cos(3553/2000) \cdot \exp(-627/400))/40 - (9 \cdot \exp(-627/400) \cdot \sin(3553/2000))/8 + 3/8, (51 \cdot \cos(357/200) \cdot \exp(-63/40))/40 - (9 \cdot \exp(-63/40) \cdot \sin(357/200))/8 + 3/8, (51 \cdot \cos(3587/2000) \cdot \exp(-633/400))/40 - (9 \cdot \exp(-633/400) \cdot \sin(3587/2000))/8 + 3/8, (51 \cdot \cos(901/500) \cdot \exp(-159/100))/40 - (9 \cdot \exp(-159/100) \cdot \sin(901/500))/8 + 3/8, (51 \cdot \cos(3621/2000) \cdot \exp(-639/400))/40 - (9 \cdot \exp(-639/400) \cdot \sin(3621/2000))/8 + 3/8, (51 \cdot \cos(1819/1000) \cdot \exp(-321/200))/40 - (9 \cdot \exp(-321/200) \cdot \sin(1819/1000))/8 + 3/8, (51 \cdot \cos(731/400) \cdot \exp(-129/80))/40 - (9 \cdot \exp(-129/80) \cdot \sin(731/400))/8 + 3/8, (51 \cdot \cos(459/250) \cdot \exp(-81/50))/40 - (9 \cdot \exp(-81/50) \cdot \sin(459/250))/8 + 3/8, (51 \cdot \cos(3689/2000) \cdot \exp(-651/400))/40 - (9 \cdot \exp(-651/400) \cdot \sin(3689/2000))/8 + 3/8, (51 \cdot \cos(1853/1000) \cdot \exp(-327/200))/40 - (9 \cdot \exp(-327/200) \cdot \sin(1853/1000))/8 + 3/8, (51 \cdot \cos(3723/2000) \cdot \exp(-657/400))/40 - (9 \cdot \exp(-657/400) \cdot \sin(3723/2000))/8 + 3/8, (51 \cdot \cos(187/100) \cdot \exp(-33/20))/40 - (9 \cdot \exp(-33/20) \cdot \sin(187/100))/8 + 3/8, (51 \cdot \cos(3757/2000) \cdot \exp(-663/400))/40 - (9 \cdot \exp(-663/400) \cdot \sin(3757/2000))/8 + 3/8, (51 \cdot \cos(1887/1000) \cdot \exp(-333/200))/40 - (9 \cdot \exp(-333/200) \cdot \sin(1887/1000))/8 + 3/8, (51 \cdot \cos(3791/2000) \cdot \exp(-669/400))/40 - (9 \cdot \exp(-669/400) \cdot \sin(3791/2000))/8 + 3/8, (51 \cdot \cos(238/125) \cdot \exp(-42/25))/40 - (9 \cdot \exp(-42/25) \cdot \sin(238/125))/8 + 3/8, (51 \cdot \cos(153/80) \cdot \exp(-27/16))/40 - (9 \cdot \exp(-27/16) \cdot \sin(153/80))/8 + 3/8, (51 \cdot \cos(1921/1000) \cdot \exp(-339/200))/40 - (9 \cdot \exp(-339/200) \cdot \sin(1921/1000))/8 + 3/8, (51 \cdot \cos(3859/2000) \cdot \exp(-681/400))/40 - (9 \cdot \exp(-681/400) \cdot \sin(3859/2000))/8 + 3/8, (51 \cdot \cos(969/500) \cdot \exp(-171/100))/40 - (9 \cdot \exp(-171/100) \cdot \sin(969/500))/8 + 3/8, (51 \cdot \cos(3893/2000) \cdot \exp(-687/400))/40 - (9 \cdot \exp(-687/400) \cdot \sin(3893/2000))/8 + 3/8, (51 \cdot \cos(391/200) \cdot \exp(-69/40))/40 - (9 \cdot \exp(-69/40) \cdot \sin(391/200))/8 + 3/8, (51 \cdot \cos(3927/2000) \cdot \exp(-693/400))/40 - (9 \cdot \exp(-693/400) \cdot \sin(3927/2000))/8 + 3/8, (51 \cdot \cos(493/250) \cdot \exp(-87/50))/40 - (9 \cdot \exp(-87/50) \cdot \sin(493/250))/8 + 3/8, (51 \cdot \cos(3961/2000) \cdot \exp(-699/400))/40 - (9 \cdot \exp(-699/400) \cdot \sin(3961/2000))/8 + 3/8, (51 \cdot \cos(1989/1000) \cdot \exp(-351/200))/40 - (9 \cdot \exp(-351/200) \cdot \sin(1989/1000))/8 + 3/8, (51 \cdot \cos(799/400) \cdot \exp(-141/80))/40 - (9 \cdot \exp(-141/80) \cdot \sin(799/400))/8 + 3/8, (51 \cdot \cos(1003/500) \cdot \exp(-177/100))/40 - (9 \cdot \exp(-177/100) \cdot \sin(1003/500))/8 + 3/8, (51 \cdot \cos(4029/2000) \cdot \exp(-711/400))/40 - (9 \cdot \exp(-711/400) \cdot \sin(4029/2000))/8 + 3/8, (51 \cdot \cos(2023/1000) \cdot \exp(-357/200))/40 - (9 \cdot \exp(-357/200) \cdot \sin(2023/1000))/8 + 3/8, (51 \cdot \cos(4063/2000) \cdot \exp(-717/400))/40 - (9 \cdot \exp(-$

$717/400*\sin(4063/2000))/8 + 3/8, (51*\cos(51/25)*\exp(-9/5))/40 - (9*\exp(-9/5)*\sin(51/25))/8 + 3/8,$
 $(51*\cos(4097/2000)*\exp(-723/400))/40 - (9*\exp(-723/400)*\sin(4097/2000))/8 + 3/8,$
 $(51*\cos(2057/1000)*\exp(-363/200))/40 - (9*\exp(-363/200)*\sin(2057/1000))/8 + 3/8,$
 $(51*\cos(4131/2000)*\exp(-729/400))/40 - (9*\exp(-729/400)*\sin(4131/2000))/8 + 3/8,$
 $(51*\cos(1037/500)*\exp(-183/100))/40 - (9*\exp(-183/100)*\sin(1037/500))/8 + 3/8,$
 $(51*\cos(833/400)*\exp(-147/80))/40 - (9*\exp(-147/80)*\sin(833/400))/8 + 3/8, (51*\cos(2091/1000)*\exp(-$
 $369/200))/40 - (9*\exp(-369/200)*\sin(2091/1000))/8 + 3/8, (51*\cos(4199/2000)*\exp(-741/400))/40 -$
 $(9*\exp(-741/400)*\sin(4199/2000))/8 + 3/8, (51*\cos(527/250)*\exp(-93/50))/40 - (9*\exp(-$
 $93/50)*\sin(527/250))/8 + 3/8, (51*\cos(4233/2000)*\exp(-747/400))/40 - (9*\exp(-$
 $747/400)*\sin(4233/2000))/8 + 3/8, (51*\cos(17/8)*\exp(-15/8))/40 - (9*\exp(-15/8)*\sin(17/8))/8 + 3/8]$

dp =

- (153*cos((17*t)/20)*exp(-(3*t)/4))/80 - (6*sin((17*t)/20)*exp(-(3*t)/4))/25

lpn =

$[-153/80, - (153*\cos(17/2000)*\exp(-3/400))/80 - (6*\exp(-3/400)*\sin(17/2000))/25, -$
 $(153*\cos(17/1000)*\exp(-3/200))/80 - (6*\exp(-3/200)*\sin(17/1000))/25, - (153*\cos(51/2000)*\exp(-$
 $9/400))/80 - (6*\exp(-9/400)*\sin(51/2000))/25, - (153*\cos(17/500)*\exp(-3/100))/80 - (6*\exp(-$
 $3/100)*\sin(17/500))/25, - (153*\cos(17/400)*\exp(-3/80))/80 - (6*\exp(-3/80)*\sin(17/400))/25, -$
 $(153*\cos(51/1000)*\exp(-9/200))/80 - (6*\exp(-9/200)*\sin(51/1000))/25, - (153*\cos(119/2000)*\exp(-$
 $21/400))/80 - (6*\exp(-21/400)*\sin(119/2000))/25, - (153*\cos(17/250)*\exp(-3/50))/80 - (6*\exp(-$
 $3/50)*\sin(17/250))/25, - (153*\cos(153/2000)*\exp(-27/400))/80 - (6*\exp(-27/400)*\sin(153/2000))/25, -$
 $(153*\cos(17/200)*\exp(-3/40))/80 - (6*\exp(-3/40)*\sin(17/200))/25, - (153*\cos(187/2000)*\exp(-$
 $33/400))/80 - (6*\exp(-33/400)*\sin(187/2000))/25, - (153*\cos(51/500)*\exp(-9/100))/80 - (6*\exp(-$
 $9/100)*\sin(51/500))/25, - (153*\cos(221/2000)*\exp(-39/400))/80 - (6*\exp(-39/400)*\sin(221/2000))/25, -$
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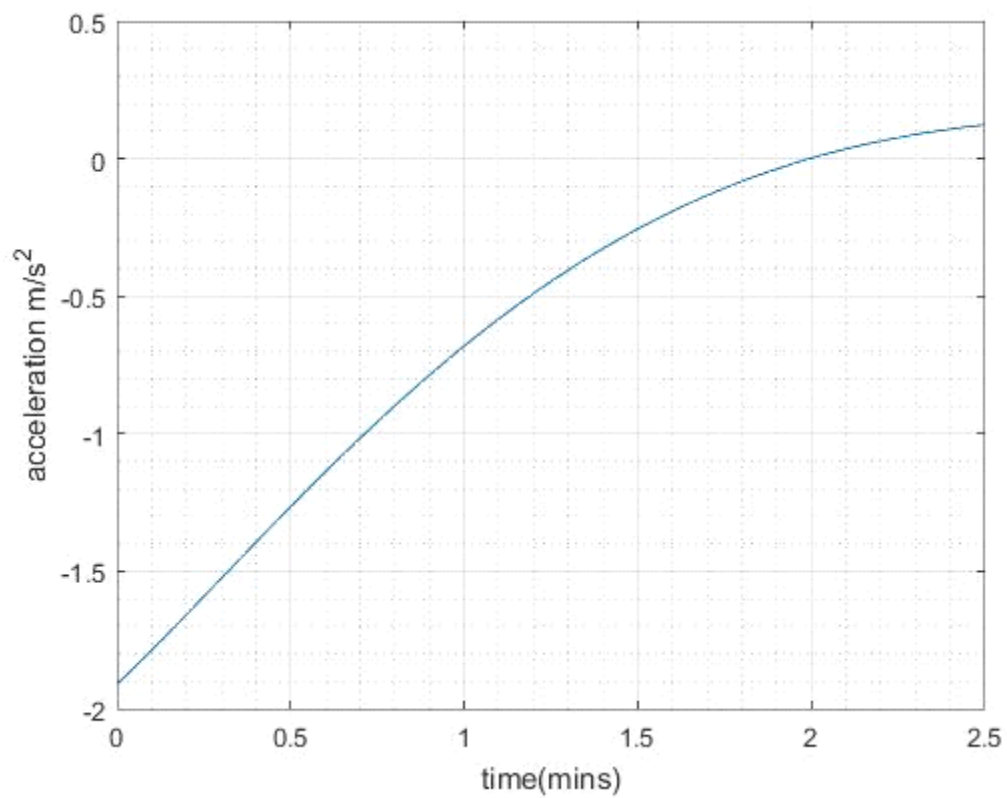
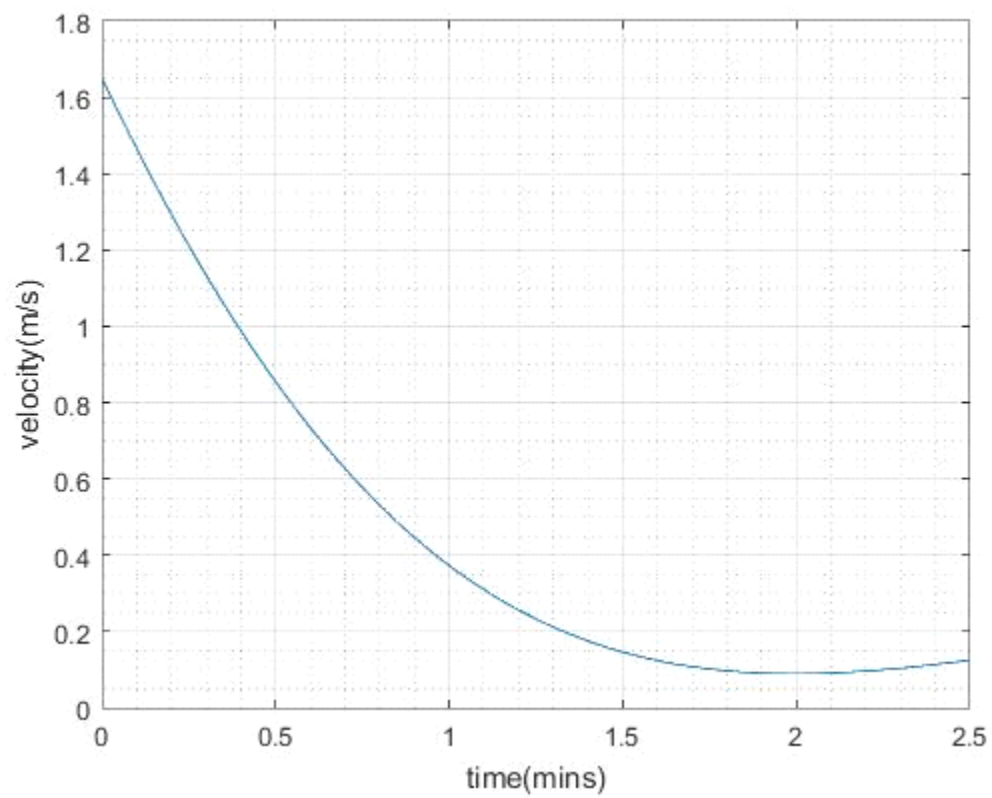
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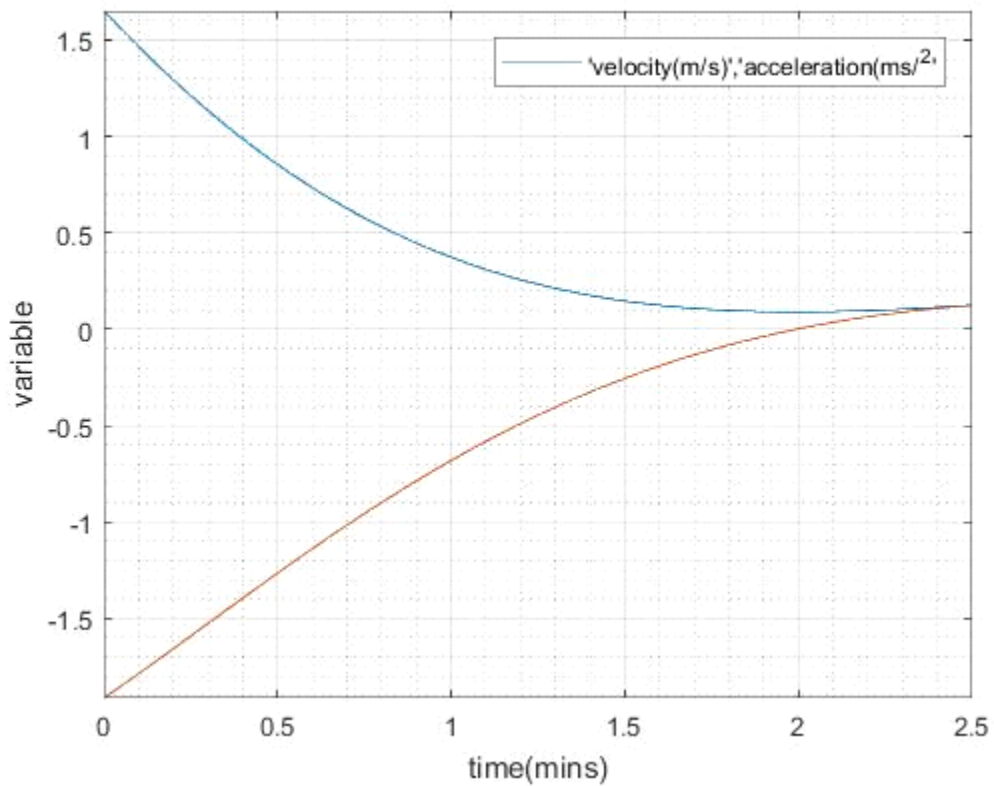
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219/400))/80 - (6*exp(-219/400)*sin(1241/2000))/25, - (153*cos(629/1000)*exp(-111/200))/80 -
(6*exp(-111/200)*sin(629/1000))/25, - (153*cos(51/80)*exp(-9/16))/80 - (6*exp(-9/16)*sin(51/80))/25,
- (153*cos(323/500)*exp(-57/100))/80 - (6*exp(-57/100)*sin(323/500))/25, -
(153*cos(1309/2000)*exp(-231/400))/80 - (6*exp(-231/400)*sin(1309/2000))/25, -
(153*cos(663/1000)*exp(-117/200))/80 - (6*exp(-117/200)*sin(663/1000))/25, -
(153*cos(1343/2000)*exp(-237/400))/80 - (6*exp(-237/400)*sin(1343/2000))/25, -
(153*cos(17/25)*exp(-3/5))/80 - (6*exp(-3/5)*sin(17/25))/25, - (153*cos(1377/2000)*exp(-
243/400))/80 - (6*exp(-243/400)*sin(1377/2000))/25, - (153*cos(697/1000)*exp(-123/200))/80 -
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(153*cos(187/250)*exp(-33/50))/80 - (6*exp(-33/50)*sin(187/250))/25, - (153*cos(1513/2000)*exp(-
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27/40)*sin(153/200))/25, - (153*cos(1547/2000)*exp(-273/400))/80 - (6*exp(-
273/400)*sin(1547/2000))/25, - (153*cos(391/500)*exp(-69/100))/80 - (6*exp(-
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(153*cos(1751/2000)*exp(-309/400))/80 - (6*exp(-309/400)*sin(1751/2000))/25, -
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- (153*cos(1887/2000)*exp(-333/400))/80 - (6*exp(-333/400)*sin(1887/2000))/25, -
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 $(6 \cdot \exp(-291/200) \cdot \sin(1649/1000))/25, - (153 \cdot \cos(663/400) \cdot \exp(-117/80))/80 - (6 \cdot \exp(-$
 $117/80) \cdot \sin(663/400))/25, - (153 \cdot \cos(833/500) \cdot \exp(-147/100))/80 - (6 \cdot \exp(-$
 $147/100) \cdot \sin(833/500))/25, - (153 \cdot \cos(3349/2000) \cdot \exp(-591/400))/80 - (6 \cdot \exp(-$
 $591/400) \cdot \sin(3349/2000))/25, - (153 \cdot \cos(1683/1000) \cdot \exp(-297/200))/80 - (6 \cdot \exp(-$
 $297/200) \cdot \sin(1683/1000))/25, - (153 \cdot \cos(3383/2000) \cdot \exp(-597/400))/80 - (6 \cdot \exp(-$
 $597/400) \cdot \sin(3383/2000))/25, - (153 \cdot \cos(17/10) \cdot \exp(-3/2))/80 - (6 \cdot \exp(-3/2) \cdot \sin(17/10))/25, -$
 $(153 \cdot \cos(3417/2000) \cdot \exp(-603/400))/80 - (6 \cdot \exp(-603/400) \cdot \sin(3417/2000))/25, -$
 $(153 \cdot \cos(1717/1000) \cdot \exp(-303/200))/80 - (6 \cdot \exp(-303/200) \cdot \sin(1717/1000))/25, -$
 $(153 \cdot \cos(3451/2000) \cdot \exp(-609/400))/80 - (6 \cdot \exp(-609/400) \cdot \sin(3451/2000))/25, -$
 $(153 \cdot \cos(867/500) \cdot \exp(-153/100))/80 - (6 \cdot \exp(-153/100) \cdot \sin(867/500))/25, - (153 \cdot \cos(697/400) \cdot \exp(-$
 $123/80))/80 - (6 \cdot \exp(-123/80) \cdot \sin(697/400))/25, - (153 \cdot \cos(1751/1000) \cdot \exp(-309/200))/80 - (6 \cdot \exp(-$
 $309/200) \cdot \sin(1751/1000))/25, - (153 \cdot \cos(3519/2000) \cdot \exp(-621/400))/80 - (6 \cdot \exp(-$
 $621/400) \cdot \sin(3519/2000))/25, - (153 \cdot \cos(221/125) \cdot \exp(-39/25))/80 - (6 \cdot \exp(-39/25) \cdot \sin(221/125))/25,$
 $- (153 \cdot \cos(3553/2000) \cdot \exp(-627/400))/80 - (6 \cdot \exp(-627/400) \cdot \sin(3553/2000))/25, -$
 $(153 \cdot \cos(357/200) \cdot \exp(-63/40))/80 - (6 \cdot \exp(-63/40) \cdot \sin(357/200))/25, - (153 \cdot \cos(3587/2000) \cdot \exp(-$
 $633/400))/80 - (6 \cdot \exp(-633/400) \cdot \sin(3587/2000))/25, - (153 \cdot \cos(901/500) \cdot \exp(-159/100))/80 - (6 \cdot \exp(-$
 $159/100) \cdot \sin(901/500))/25, - (153 \cdot \cos(3621/2000) \cdot \exp(-639/400))/80 - (6 \cdot \exp(-$
 $639/400) \cdot \sin(3621/2000))/25, - (153 \cdot \cos(1819/1000) \cdot \exp(-321/200))/80 - (6 \cdot \exp(-$

$321/200) * \sin(1819/1000))/25, - (153 * \cos(731/400) * \exp(-129/80))/80 - (6 * \exp(-129/80) * \sin(731/400))/25, - (153 * \cos(459/250) * \exp(-81/50))/80 - (6 * \exp(-81/50) * \sin(459/250))/25, - (153 * \cos(3689/2000) * \exp(-651/400))/80 - (6 * \exp(-651/400) * \sin(3689/2000))/25, - (153 * \cos(1853/1000) * \exp(-327/200))/80 - (6 * \exp(-327/200) * \sin(1853/1000))/25, - (153 * \cos(3723/2000) * \exp(-657/400))/80 - (6 * \exp(-657/400) * \sin(3723/2000))/25, - (153 * \cos(187/100) * \exp(-33/20))/80 - (6 * \exp(-33/20) * \sin(187/100))/25, - (153 * \cos(3757/2000) * \exp(-663/400))/80 - (6 * \exp(-663/400) * \sin(3757/2000))/25, - (153 * \cos(1887/1000) * \exp(-333/200))/80 - (6 * \exp(-333/200) * \sin(1887/1000))/25, - (153 * \cos(3791/2000) * \exp(-669/400))/80 - (6 * \exp(-669/400) * \sin(3791/2000))/25, - (153 * \cos(238/125) * \exp(-42/25))/80 - (6 * \exp(-42/25) * \sin(238/125))/25, - (153 * \cos(153/80) * \exp(-27/16))/80 - (6 * \exp(-27/16) * \sin(153/80))/25, - (153 * \cos(1921/1000) * \exp(-339/200))/80 - (6 * \exp(-339/200) * \sin(1921/1000))/25, - (153 * \cos(3859/2000) * \exp(-681/400))/80 - (6 * \exp(-681/400) * \sin(3859/2000))/25, - (153 * \cos(969/500) * \exp(-171/100))/80 - (6 * \exp(-171/100) * \sin(969/500))/25, - (153 * \cos(3893/2000) * \exp(-687/400))/80 - (6 * \exp(-687/400) * \sin(3893/2000))/25, - (153 * \cos(391/200) * \exp(-69/40))/80 - (6 * \exp(-69/40) * \sin(391/200))/25, - (153 * \cos(3927/2000) * \exp(-693/400))/80 - (6 * \exp(-693/400) * \sin(3927/2000))/25, - (153 * \cos(493/250) * \exp(-87/50))/80 - (6 * \exp(-87/50) * \sin(493/250))/25, - (153 * \cos(3961/2000) * \exp(-699/400))/80 - (6 * \exp(-699/400) * \sin(3961/2000))/25, - (153 * \cos(1989/1000) * \exp(-351/200))/80 - (6 * \exp(-351/200) * \sin(1989/1000))/25, - (153 * \cos(799/400) * \exp(-141/80))/80 - (6 * \exp(-141/80) * \sin(799/400))/25, - (153 * \cos(1003/500) * \exp(-177/100))/80 - (6 * \exp(-177/100) * \sin(1003/500))/25, - (153 * \cos(4029/2000) * \exp(-711/400))/80 - (6 * \exp(-711/400) * \sin(4029/2000))/25, - (153 * \cos(2023/1000) * \exp(-357/200))/80 - (6 * \exp(-357/200) * \sin(2023/1000))/25, - (153 * \cos(4063/2000) * \exp(-717/400))/80 - (6 * \exp(-717/400) * \sin(4063/2000))/25, - (153 * \cos(51/25) * \exp(-9/5))/80 - (6 * \exp(-9/5) * \sin(51/25))/25, - (153 * \cos(4097/2000) * \exp(-723/400))/80 - (6 * \exp(-723/400) * \sin(4097/2000))/25, - (153 * \cos(2057/1000) * \exp(-363/200))/80 - (6 * \exp(-363/200) * \sin(2057/1000))/25, - (153 * \cos(4131/2000) * \exp(-729/400))/80 - (6 * \exp(-729/400) * \sin(4131/2000))/25, - (153 * \cos(1037/500) * \exp(-183/100))/80 - (6 * \exp(-183/100) * \sin(1037/500))/25, - (153 * \cos(833/400) * \exp(-147/80))/80 - (6 * \exp(-147/80) * \sin(833/400))/25, - (153 * \cos(2091/1000) * \exp(-369/200))/80 - (6 * \exp(-369/200) * \sin(2091/1000))/25, - (153 * \cos(4199/2000) * \exp(-741/400))/80 - (6 * \exp(-741/400) * \sin(4199/2000))/25, - (153 * \cos(527/250) * \exp(-93/50))/80 - (6 * \exp(-93/50) * \sin(527/250))/25, - (153 * \cos(4233/2000) * \exp(-747/400))/80 - (6 * \exp(-747/400) * \sin(4233/2000))/25, - (153 * \cos(17/8) * \exp(-15/8))/80 - (6 * \exp(-15/8) * \sin(17/8))/25]$





3

```

commandwindow
clear
clc
syms x
y = 5*(sin(5*x))^5
d = 3.142*y^2
t = int(d,0,180)
g = double(t)

```

y =

$5\sin(5x)^5$

d =

$(1571 \cdot \sin(5 \cdot x)^{10}) / 20$

t =

$(4713 \cdot \sin(3600)) / 5120 - (32991 \cdot \sin(1800)) / 10240 - (4713 \cdot \sin(5400)) / 20480 + (1571 \cdot \sin(7200)) / 40960 - (1571 \cdot \sin(9000)) / 512000 + 890757 / 256$

g =

3.4787e+03

>>

1.

```
commandwindow
clear
clc
A = [0 10 4 -2; -3 -17 1 2; 1 1 1 0; 8 -34 16 -10]
B = [-4 2 6 4] '
C = inv(A)
X = C*B
```

A =

```
0 10 4 -2
-3 -17 1 2
1 1 1 0
```

8 -34 16 -10

B =

-4

2

6

4

C =

-0.1786 -0.1020 0.5714 0.0153

0.0357 -0.0153 0.0357 -0.0102

0.1429 0.1173 0.3929 -0.0051

-0.0357 0.1582 0.9643 -0.0612

X =

4.0000

-0.0000

2.0000

6.0000

>>

>>