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16/ENG06/006

MECHANICAL ENGINEERING

ENG 281

QUESTION 4A

```
commandwindow

clear

clc

clear all
A=[0,10,4,-2;-3,-17,1,2;1,1,1,0;8,-34,16,-10]
b=[-4;2;6;4]
x=inv(A)*b
```

A =

```
0    10    4    -2
-3   -17    1     2
1     1    1     0
8   -34   16   -10
```

b =

```
-4
2
6
```

x =

4.0000

-0.0000

2.0000

6.0000

Published with MATLAB® R2017a

QUESTION 4B

```
commandwindow

clear

clc

close all
syms t
d=1.5*exp(-0.75*t)*sin(0.85*t)+0.375*t
m=[0:0.01:2.5]
dn=subs(d,m)
v=diff(d)
vn=subs(v,m)
p=double(vn)
a=diff(v)
an=subs(a,m)
t=double(an)
figure(1)
plot(m,vn,m,an)
grid on
grid minor
axis tight
```

```
ylabel('Variable')
xlabel('Time (minutes)')
legend('Velocity(km/min) ', 'Acceleration(km/min^2) ', 'location ', 'best')
```

d =

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

m =

Columns 1 through 7

0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600

Columns 8 through 14

0.0700 0.0800 0.0900 0.1000 0.1100 0.1200 0.1300

Columns 15 through 21

0.1400 0.1500 0.1600 0.1700 0.1800 0.1900 0.2000

Columns 22 through 28

0.2100 0.2200 0.2300 0.2400 0.2500 0.2600 0.2700

Columns 29 through 35

0.2800 0.2900 0.3000 0.3100 0.3200 0.3300 0.3400

Columns 36 through 42

0.3500 0.3600 0.3700 0.3800 0.3900 0.4000 0.4100

Columns 43 through 49

0.4200 0.4300 0.4400 0.4500 0.4600 0.4700 0.4800

Columns 50 through 56

0.4900 0.5000 0.5100 0.5200 0.5300 0.5400 0.5500

Columns 57 through 63

0.5600 0.5700 0.5800 0.5900 0.6000 0.6100 0.6200

Columns 64 through 70

0.6300 0.6400 0.6500 0.6600 0.6700 0.6800 0.6900

Columns 71 through 77

0.7000 0.7100 0.7200 0.7300 0.7400 0.7500 0.7600

Columns 78 through 84

0.7700 0.7800 0.7900 0.8000 0.8100 0.8200 0.8300

Columns 85 through 91

0.8400 0.8500 0.8600 0.8700 0.8800 0.8900 0.9000

Columns 92 through 98

0.9100 0.9200 0.9300 0.9400 0.9500 0.9600 0.9700

Columns 99 through 105

0.9800 0.9900 1.0000 1.0100 1.0200 1.0300 1.0400

Columns 106 through 112

1.0500 1.0600 1.0700 1.0800 1.0900 1.1000 1.1100

Columns 113 through 119

1.1200 1.1300 1.1400 1.1500 1.1600 1.1700 1.1800

Columns 120 through 126

1.1900 1.2000 1.2100 1.2200 1.2300 1.2400 1.2500

Columns 127 through 133

1.2600 1.2700 1.2800 1.2900 1.3000 1.3100 1.3200

Columns 134 through 140

1.3300 1.3400 1.3500 1.3600 1.3700 1.3800 1.3900

Columns 141 through 147

1.4000 1.4100 1.4200 1.4300 1.4400 1.4500 1.4600

Columns 148 through 154

1.4700 1.4800 1.4900 1.5000 1.5100 1.5200 1.5300

Columns 155 through 161

1.5400 1.5500 1.5600 1.5700 1.5800 1.5900 1.6000

Columns 162 through 168

1.6100 1.6200 1.6300 1.6400 1.6500 1.6600 1.6700

Columns 169 through 175

1.6800 1.6900 1.7000 1.7100 1.7200 1.7300 1.7400

Columns 176 through 182

1.7500 1.7600 1.7700 1.7800 1.7900 1.8000 1.8100

Columns 183 through 189

1.8200 1.8300 1.8400 1.8500 1.8600 1.8700 1.8800

Columns 190 through 196

1.8900 1.9000 1.9100 1.9200 1.9300 1.9400 1.9500

Columns 197 through 203

1.9600 1.9700 1.9800 1.9900 2.0000 2.0100 2.0200

Columns 204 through 210

2.0300 2.0400 2.0500 2.0600 2.0700 2.0800 2.0900

Columns 211 through 217

2.1000 2.1100 2.1200 2.1300 2.1400 2.1500 2.1600

Columns 218 through 224

2.1700 2.1800 2.1900 2.2000 2.2100 2.2200 2.2300

Columns 225 through 231

2.2400 2.2500 2.2600 2.2700 2.2800 2.2900 2.3000

Columns 232 through 238

2.3100 2.3200 2.3300 2.3400 2.3500 2.3600 2.3700

Columns 239 through 245

2.3800 2.3900 2.4000 2.4100 2.4200 2.4300 2.4400

Columns 246 through 251

2.4500 2.4600 2.4700 2.4800 2.4900 2.5000

dn =

[0, (3*exp(-3/400)*sin(17/2000))/2 + 3/800, (3*exp(-3/200)*sin(17/1000))/2 + 3/400, (3*exp(-9/400)*sin(51/2000))/2 + 9/800, (3*exp(-3/100)*sin(17/500))/2 + 3/200, (3*exp(-3/80)*sin(17/400))/2 + 3/160, (3*exp(-9/200)*sin(51/1000))/2 + 9/400, (3*exp(-21/400)*sin(119/2000))/2 + 21/800, (3*exp(-3/50)*sin(17/250))/2 + 3/100, (3*exp(-27/400)*sin(153/2000))/2 + 27/800, (3*exp(-3/40)*sin(17/200))/2 + 3/80, (3*exp(-33/400)*sin(187/2000))/2 + 33/800, (3*exp(-9/100)*sin(51/500))/2 + 9/200, (3*exp(-39/400)*sin(221/2000))/2 + 39/800, (3*exp(-21/200)*sin(119/1000))/2 + 21/400, (3*exp(-9/80)*sin(51/400))/2 + 9/160, (3*exp(-3/25)*sin(17/125))/2 + 3/50, (3*exp(-51/400)*sin(289/2000))/2 + 51/800, (3*exp(-27/200)*sin(153/1000))/2 + 27/400, (3*exp(-57/400)*sin(323/2000))/2 + 57/800, (3*exp(-3/20)*sin(17/100))/2 + 3/40, (3*exp(-63/400)*sin(357/2000))/2 + 63/800, (3*exp(-33/200)*sin(187/1000))/2 + 33/400, (3*exp(-69/400)*sin(391/2000))/2 + 69/800, (3*exp(-9/50)*sin(51/250))/2 + 9/100, (3*exp(-3/16)*sin(17/80))/2 + 3/32, (3*exp(-39/200)*sin(221/1000))/2 + 39/400, (3*exp(-81/400)*sin(459/2000))/2 + 81/800, (3*exp(-21/100)*sin(119/500))/2 + 21/200, (3*exp(-87/400)*sin(493/2000))/2 + 87/800, (3*exp(-9/40)*sin(51/200))/2 + 9/80, (3*exp(-93/400)*sin(527/2000))/2 + 93/800, (3*exp(-6/25)*sin(34/125))/2 + 3/25, (3*exp(-99/400)*sin(561/2000))/2 + 99/800, (3*exp(-51/200)*sin(289/1000))/2 + 51/400, (3*exp(-21/80)*sin(119/400))/2 + 21/160, (3*exp(-27/100)*sin(153/500))/2 + 27/200, (3*exp(-111/400)*sin(629/2000))/2 + 111/800, (3*exp(-57/200)*sin(323/1000))/2 + 57/400, (3*exp(-117/400)*sin(663/2000))/2 + 117/800, (3*exp(-3/10)*sin(17/50))/2 + 3/20, (3*exp(-123/400)*sin(697/2000))/2 + 123/800, (3*exp(-63/200)*sin(357/1000))/2 + 63/400, (3*exp(-129/400)*sin(731/2000))/2 + 129/800, (3*exp(-33/100)*sin(187/500))/2 +

33/200, (3*exp(-27/80)*sin(153/400))/2 + 27/160, (3*exp(-69/200)*sin(391/1000))/2 + 69/400, (3*exp(-141/400)*sin(799/2000))/2 + 141/800, (3*exp(-9/25)*sin(51/125))/2 + 9/50, (3*exp(-147/400)*sin(833/2000))/2 + 147/800, (3*exp(-3/8)*sin(17/40))/2 + 3/16, (3*exp(-153/400)*sin(867/2000))/2 + 153/800, (3*exp(-39/100)*sin(221/500))/2 + 39/200, (3*exp(-159/400)*sin(901/2000))/2 + 159/800, (3*exp(-81/200)*sin(459/1000))/2 + 81/400, (3*exp(-33/80)*sin(187/400))/2 + 33/160, (3*exp(-21/50)*sin(119/250))/2 + 21/100, (3*exp(-171/400)*sin(969/2000))/2 + 171/800, (3*exp(-87/200)*sin(493/1000))/2 + 87/400, (3*exp(-177/400)*sin(1003/2000))/2 + 177/800, (3*exp(-9/20)*sin(51/100))/2 + 9/40, (3*exp(-183/400)*sin(1037/2000))/2 + 183/800, (3*exp(-93/200)*sin(527/1000))/2 + 93/400, (3*exp(-189/400)*sin(1071/2000))/2 + 189/800, (3*exp(-12/25)*sin(68/125))/2 + 6/25, (3*exp(-39/80)*sin(221/400))/2 + 39/160, (3*exp(-99/200)*sin(561/1000))/2 + 99/400, (3*exp(-201/400)*sin(1139/2000))/2 + 201/800, (3*exp(-51/100)*sin(289/500))/2 + 51/200, (3*exp(-207/400)*sin(1173/2000))/2 + 207/800, (3*exp(-21/40)*sin(119/200))/2 + 21/80, (3*exp(-213/400)*sin(1207/2000))/2 + 213/800, (3*exp(-27/50)*sin(153/250))/2 + 27/100, (3*exp(-219/400)*sin(1241/2000))/2 + 219/800, (3*exp(-111/200)*sin(629/1000))/2 + 111/400, (3*exp(-9/16)*sin(51/80))/2 + 9/32, (3*exp(-57/100)*sin(323/500))/2 + 57/200, (3*exp(-231/400)*sin(1309/2000))/2 + 231/800, (3*exp(-117/200)*sin(663/1000))/2 + 117/400, (3*exp(-237/400)*sin(1343/2000))/2 + 237/800, (3*exp(-3/5)*sin(17/25))/2 + 3/10, (3*exp(-243/400)*sin(1377/2000))/2 + 243/800, (3*exp(-123/200)*sin(697/1000))/2 + 123/400, (3*exp(-249/400)*sin(1411/2000))/2 + 249/800, (3*exp(-63/100)*sin(357/500))/2 + 63/200, (3*exp(-51/80)*sin(289/400))/2 + 51/160, (3*exp(-129/200)*sin(731/1000))/2 + 129/400, (3*exp(-261/400)*sin(1479/2000))/2 + 261/800, (3*exp(-33/50)*sin(187/250))/2 + 33/100, (3*exp(-267/400)*sin(1513/2000))/2 + 267/800, (3*exp(-27/40)*sin(153/200))/2 + 27/80, (3*exp(-273/400)*sin(1547/2000))/2 + 273/800, (3*exp(-69/100)*sin(391/500))/2 + 69/200, (3*exp(-279/400)*sin(1581/2000))/2 + 279/800, (3*exp(-141/200)*sin(799/1000))/2 + 141/400, (3*exp(-57/80)*sin(323/400))/2 + 57/160, (3*exp(-18/25)*sin(102/125))/2 + 9/25, (3*exp(-291/400)*sin(1649/2000))/2 + 291/800, (3*exp(-147/200)*sin(833/1000))/2 + 147/400, (3*exp(-297/400)*sin(1683/2000))/2 + 297/800, (3*exp(-3/4)*sin(17/20))/2 + 3/8, (3*exp(-303/400)*sin(1717/2000))/2 + 303/800, (3*exp(-153/200)*sin(867/1000))/2 + 153/400, (3*exp(-309/400)*sin(1751/2000))/2 + 309/800, (3*exp(-39/50)*sin(221/250))/2 + 39/100, (3*exp(-63/80)*sin(357/400))/2 + 63/160, (3*exp(-159/200)*sin(901/1000))/2 + 159/400, (3*exp(-321/400)*sin(1819/2000))/2 + 321/800, (3*exp(-81/100)*sin(459/500))/2 + 81/200, (3*exp(-327/400)*sin(1853/2000))/2 + 327/800, (3*exp(-33/40)*sin(187/200))/2 + 33/80, (3*exp(-333/400)*sin(1887/2000))/2 + 333/800, (3*exp(-21/25)*sin(119/125))/2 + 21/50, (3*exp(-339/400)*sin(1921/2000))/2 + 339/800, (3*exp(-171/200)*sin(969/1000))/2 + 171/400, (3*exp(-69/80)*sin(391/400))/2 + 69/160, (3*exp(-87/100)*sin(493/500))/2 + 87/200, (3*exp(-351/400)*sin(1989/2000))/2 + 351/800, (3*exp(-177/200)*sin(1003/1000))/2 + 177/400, (3*exp(-357/400)*sin(2023/2000))/2 + 357/800, (3*exp(-9/10)*sin(51/50))/2 + 9/20, (3*exp(-363/400)*sin(2057/2000))/2 + 363/800, (3*exp(-183/200)*sin(1037/1000))/2 + 183/400, (3*exp(-369/400)*sin(2091/2000))/2 + 369/800, (3*exp(-93/100)*sin(527/500))/2 + 93/200, (3*exp(-15/16)*sin(17/16))/2 + 15/32, (3*exp(-189/200)*sin(1071/1000))/2 + 189/400, (3*exp(-381/400)*sin(2159/2000))/2 + 381/800, (3*exp(-24/25)*sin(136/125))/2 + 12/25, (3*exp(-387/400)*sin(2193/2000))/2 + 387/800, (3*exp(-39/40)*sin(221/200))/2 + 39/80, (3*exp(-393/400)*sin(2227/2000))/2 + 393/800, (3*exp(-99/100)*sin(561/500))/2 + 99/200, (3*exp(-399/400)*sin(2261/2000))/2 + 399/800, (3*exp(-201/200)*sin(1139/1000))/2 + 201/400, (3*exp(-81/80)*sin(459/400))/2 + 81/160, (3*exp(-51/50)*sin(289/250))/2 + 51/100, (3*exp(-411/400)*sin(2329/2000))/2 + 411/800, (3*exp(-207/200)*sin(1173/1000))/2 + 207/400, (3*exp(-417/400)*sin(2363/2000))/2 + 417/800,

$(3*\exp(-21/20)*\sin(119/100))/2 + 21/40, (3*\exp(-423/400)*\sin(2397/2000))/2 + 423/800,$
 $(3*\exp(-213/200)*\sin(1207/1000))/2 + 213/400, (3*\exp(-429/400)*\sin(2431/2000))/2 +$
 $429/800, (3*\exp(-27/25)*\sin(153/125))/2 + 27/50, (3*\exp(-87/80)*\sin(493/400))/2 +$
 $87/160, (3*\exp(-219/200)*\sin(1241/1000))/2 + 219/400, (3*\exp(-$
 $441/400)*\sin(2499/2000))/2 + 441/800, (3*\exp(-111/100)*\sin(629/500))/2 + 111/200,$
 $(3*\exp(-447/400)*\sin(2533/2000))/2 + 447/800, (3*\exp(-9/8)*\sin(51/40))/2 + 9/16,$
 $(3*\exp(-453/400)*\sin(2567/2000))/2 + 453/800, (3*\exp(-57/50)*\sin(323/250))/2 + 57/100,$
 $(3*\exp(-459/400)*\sin(2601/2000))/2 + 459/800, (3*\exp(-231/200)*\sin(1309/1000))/2 +$
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 $117/200, (3*\exp(-471/400)*\sin(2669/2000))/2 + 471/800, (3*\exp(-$
 $237/200)*\sin(1343/1000))/2 + 237/400, (3*\exp(-477/400)*\sin(2703/2000))/2 + 477/800,$
 $(3*\exp(-6/5)*\sin(34/25))/2 + 3/5, (3*\exp(-483/400)*\sin(2737/2000))/2 + 483/800,$
 $(3*\exp(-243/200)*\sin(1377/1000))/2 + 243/400, (3*\exp(-489/400)*\sin(2771/2000))/2 +$
 $489/800, (3*\exp(-123/100)*\sin(697/500))/2 + 123/200, (3*\exp(-99/80)*\sin(561/400))/2 +$
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 $501/400)*\sin(2839/2000))/2 + 501/800, (3*\exp(-63/50)*\sin(357/250))/2 + 63/100,$
 $(3*\exp(-507/400)*\sin(2873/2000))/2 + 507/800, (3*\exp(-51/40)*\sin(289/200))/2 + 51/80,$
 $(3*\exp(-513/400)*\sin(2907/2000))/2 + 513/800, (3*\exp(-129/100)*\sin(731/500))/2 +$
 $129/200, (3*\exp(-519/400)*\sin(2941/2000))/2 + 519/800, (3*\exp(-$
 $261/200)*\sin(1479/1000))/2 + 261/400, (3*\exp(-21/16)*\sin(119/80))/2 + 21/32, (3*\exp(-$
 $33/25)*\sin(187/125))/2 + 33/50, (3*\exp(-531/400)*\sin(3009/2000))/2 + 531/800, (3*\exp(-$
 $267/200)*\sin(1513/1000))/2 + 267/400, (3*\exp(-537/400)*\sin(3043/2000))/2 + 537/800,$
 $(3*\exp(-27/20)*\sin(153/100))/2 + 27/40, (3*\exp(-543/400)*\sin(3077/2000))/2 + 543/800,$
 $(3*\exp(-273/200)*\sin(1547/1000))/2 + 273/400, (3*\exp(-549/400)*\sin(3111/2000))/2 +$
 $549/800, (3*\exp(-69/50)*\sin(391/250))/2 + 69/100, (3*\exp(-111/80)*\sin(629/400))/2 +$
 $111/160, (3*\exp(-279/200)*\sin(1581/1000))/2 + 279/400, (3*\exp(-$
 $561/400)*\sin(3179/2000))/2 + 561/800, (3*\exp(-141/100)*\sin(799/500))/2 + 141/200,$
 $(3*\exp(-567/400)*\sin(3213/2000))/2 + 567/800, (3*\exp(-57/40)*\sin(323/200))/2 + 57/80,$
 $(3*\exp(-573/400)*\sin(3247/2000))/2 + 573/800, (3*\exp(-36/25)*\sin(204/125))/2 + 18/25,$
 $(3*\exp(-579/400)*\sin(3281/2000))/2 + 579/800, (3*\exp(-291/200)*\sin(1649/1000))/2 +$
 $291/400, (3*\exp(-117/80)*\sin(663/400))/2 + 117/160, (3*\exp(-147/100)*\sin(833/500))/2 +$
 $147/200, (3*\exp(-591/400)*\sin(3349/2000))/2 + 591/800, (3*\exp(-$
 $297/200)*\sin(1683/1000))/2 + 297/400, (3*\exp(-597/400)*\sin(3383/2000))/2 + 597/800,$
 $(3*\exp(-3/2)*\sin(17/10))/2 + 3/4, (3*\exp(-603/400)*\sin(3417/2000))/2 + 603/800,$
 $(3*\exp(-303/200)*\sin(1717/1000))/2 + 303/400, (3*\exp(-609/400)*\sin(3451/2000))/2 +$
 $609/800, (3*\exp(-153/100)*\sin(867/500))/2 + 153/200, (3*\exp(-123/80)*\sin(697/400))/2 +$
 $123/160, (3*\exp(-309/200)*\sin(1751/1000))/2 + 309/400, (3*\exp(-$
 $621/400)*\sin(3519/2000))/2 + 621/800, (3*\exp(-39/25)*\sin(221/125))/2 + 39/50, (3*\exp(-$
 $627/400)*\sin(3553/2000))/2 + 627/800, (3*\exp(-63/40)*\sin(357/200))/2 + 63/80, (3*\exp(-$
 $633/400)*\sin(3587/2000))/2 + 633/800, (3*\exp(-159/100)*\sin(901/500))/2 + 159/200,$
 $(3*\exp(-639/400)*\sin(3621/2000))/2 + 639/800, (3*\exp(-321/200)*\sin(1819/1000))/2 +$
 $321/400, (3*\exp(-129/80)*\sin(731/400))/2 + 129/160, (3*\exp(-81/50)*\sin(459/250))/2 +$
 $81/100, (3*\exp(-651/400)*\sin(3689/2000))/2 + 651/800, (3*\exp(-$
 $327/200)*\sin(1853/1000))/2 + 327/400, (3*\exp(-657/400)*\sin(3723/2000))/2 + 657/800,$
 $(3*\exp(-33/20)*\sin(187/100))/2 + 33/40, (3*\exp(-663/400)*\sin(3757/2000))/2 + 663/800,$
 $(3*\exp(-333/200)*\sin(1887/1000))/2 + 333/400, (3*\exp(-669/400)*\sin(3791/2000))/2 +$
 $669/800, (3*\exp(-42/25)*\sin(238/125))/2 + 21/25, (3*\exp(-27/16)*\sin(153/80))/2 +$
 $27/32, (3*\exp(-339/200)*\sin(1921/1000))/2 + 339/400, (3*\exp(-$
 $681/400)*\sin(3859/2000))/2 + 681/800, (3*\exp(-171/100)*\sin(969/500))/2 + 171/200,$
 $(3*\exp(-687/400)*\sin(3893/2000))/2 + 687/800, (3*\exp(-69/40)*\sin(391/200))/2 + 69/80,$
 $(3*\exp(-693/400)*\sin(3927/2000))/2 + 693/800, (3*\exp(-87/50)*\sin(493/250))/2 + 87/100,$

$(3*\exp(-699/400)*\sin(3961/2000))/2 + 699/800, (3*\exp(-351/200)*\sin(1989/1000))/2 + 351/400, (3*\exp(-141/80)*\sin(799/400))/2 + 141/160, (3*\exp(-177/100)*\sin(1003/500))/2 + 177/200, (3*\exp(-711/400)*\sin(4029/2000))/2 + 711/800, (3*\exp(-357/200)*\sin(2023/1000))/2 + 357/400, (3*\exp(-717/400)*\sin(4063/2000))/2 + 717/800, (3*\exp(-9/5)*\sin(51/25))/2 + 9/10, (3*\exp(-723/400)*\sin(4097/2000))/2 + 723/800, (3*\exp(-363/200)*\sin(2057/1000))/2 + 363/400, (3*\exp(-729/400)*\sin(4131/2000))/2 + 729/800, (3*\exp(-183/100)*\sin(1037/500))/2 + 183/200, (3*\exp(-147/80)*\sin(833/400))/2 + 147/160, (3*\exp(-369/200)*\sin(2091/1000))/2 + 369/400, (3*\exp(-741/400)*\sin(4199/2000))/2 + 741/800, (3*\exp(-93/50)*\sin(527/250))/2 + 93/100, (3*\exp(-747/400)*\sin(4233/2000))/2 + 747/800, (3*\exp(-15/8)*\sin(17/8))/2 + 15/16]$

v =

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

vn =

$[33/20, (51*\cos(17/2000)*\exp(-3/400))/40 - (9*\exp(-3/400)*\sin(17/2000))/8 + 3/8, (51*\cos(17/1000)*\exp(-3/200))/40 - (9*\exp(-3/200)*\sin(17/1000))/8 + 3/8, (51*\cos(51/2000)*\exp(-9/400))/40 - (9*\exp(-9/400)*\sin(51/2000))/8 + 3/8, (51*\cos(17/500)*\exp(-3/100))/40 - (9*\exp(-3/100)*\sin(17/500))/8 + 3/8, (51*\cos(17/400)*\exp(-3/80))/40 - (9*\exp(-3/80)*\sin(17/400))/8 + 3/8, (51*\cos(51/1000)*\exp(-9/200))/40 - (9*\exp(-9/200)*\sin(51/1000))/8 + 3/8, (51*\cos(119/2000)*\exp(-21/400))/40 - (9*\exp(-21/400)*\sin(119/2000))/8 + 3/8, (51*\cos(17/250)*\exp(-3/50))/40 - (9*\exp(-3/50)*\sin(17/250))/8 + 3/8, (51*\cos(153/2000)*\exp(-27/400))/40 - (9*\exp(-27/400)*\sin(153/2000))/8 + 3/8, (51*\cos(17/200)*\exp(-3/40))/40 - (9*\exp(-3/40)*\sin(17/200))/8 + 3/8, (51*\cos(187/2000)*\exp(-33/400))/40 - (9*\exp(-33/400)*\sin(187/2000))/8 + 3/8, (51*\cos(51/500)*\exp(-9/100))/40 - (9*\exp(-9/100)*\sin(51/500))/8 + 3/8, (51*\cos(221/2000)*\exp(-39/400))/40 - (9*\exp(-39/400)*\sin(221/2000))/8 + 3/8, (51*\cos(119/1000)*\exp(-21/200))/40 - (9*\exp(-21/200)*\sin(119/1000))/8 + 3/8, (51*\cos(51/400)*\exp(-9/80))/40 - (9*\exp(-9/80)*\sin(51/400))/8 + 3/8, (51*\cos(17/125)*\exp(-3/25))/40 - (9*\exp(-3/25)*\sin(17/125))/8 + 3/8, (51*\cos(289/2000)*\exp(-51/400))/40 - (9*\exp(-51/400)*\sin(289/2000))/8 + 3/8, (51*\cos(153/1000)*\exp(-27/200))/40 - (9*\exp(-27/200)*\sin(153/1000))/8 + 3/8, (51*\cos(323/2000)*\exp(-57/400))/40 - (9*\exp(-57/400)*\sin(323/2000))/8 + 3/8, (51*\cos(17/100)*\exp(-3/20))/40 - (9*\exp(-3/20)*\sin(17/100))/8 + 3/8,$

$(51 \cdot \cos(357/2000) \cdot \exp(-63/400))/40 - (9 \cdot \exp(-63/400) \cdot \sin(357/2000))/8 + 3/8,$
 $(51 \cdot \cos(187/1000) \cdot \exp(-33/200))/40 - (9 \cdot \exp(-33/200) \cdot \sin(187/1000))/8 + 3/8,$
 $(51 \cdot \cos(391/2000) \cdot \exp(-69/400))/40 - (9 \cdot \exp(-69/400) \cdot \sin(391/2000))/8 + 3/8,$
 $(51 \cdot \cos(51/250) \cdot \exp(-9/50))/40 - (9 \cdot \exp(-9/50) \cdot \sin(51/250))/8 + 3/8,$
 $(51 \cdot \cos(17/80) \cdot \exp(-3/16))/40 - (9 \cdot \exp(-3/16) \cdot \sin(17/80))/8 + 3/8,$
 $(51 \cdot \cos(221/1000) \cdot \exp(-39/200))/40 - (9 \cdot \exp(-39/200) \cdot \sin(221/1000))/8 + 3/8,$
 $(51 \cdot \cos(459/2000) \cdot \exp(-81/400))/40 - (9 \cdot \exp(-81/400) \cdot \sin(459/2000))/8 + 3/8,$
 $(51 \cdot \cos(119/500) \cdot \exp(-21/100))/40 - (9 \cdot \exp(-21/100) \cdot \sin(119/500))/8 + 3/8,$
 $(51 \cdot \cos(493/2000) \cdot \exp(-87/400))/40 - (9 \cdot \exp(-87/400) \cdot \sin(493/2000))/8 + 3/8,$
 $(51 \cdot \cos(51/200) \cdot \exp(-9/40))/40 - (9 \cdot \exp(-9/40) \cdot \sin(51/200))/8 + 3/8,$
 $(51 \cdot \cos(527/2000) \cdot \exp(-93/400))/40 - (9 \cdot \exp(-93/400) \cdot \sin(527/2000))/8 + 3/8,$
 $(51 \cdot \cos(34/125) \cdot \exp(-6/25))/40 - (9 \cdot \exp(-6/25) \cdot \sin(34/125))/8 + 3/8,$
 $(51 \cdot \cos(561/2000) \cdot \exp(-99/400))/40 - (9 \cdot \exp(-99/400) \cdot \sin(561/2000))/8 + 3/8,$
 $(51 \cdot \cos(289/1000) \cdot \exp(-51/200))/40 - (9 \cdot \exp(-51/200) \cdot \sin(289/1000))/8 + 3/8,$
 $(51 \cdot \cos(119/400) \cdot \exp(-21/80))/40 - (9 \cdot \exp(-21/80) \cdot \sin(119/400))/8 + 3/8,$
 $(51 \cdot \cos(153/500) \cdot \exp(-27/100))/40 - (9 \cdot \exp(-27/100) \cdot \sin(153/500))/8 + 3/8,$
 $(51 \cdot \cos(629/2000) \cdot \exp(-111/400))/40 - (9 \cdot \exp(-111/400) \cdot \sin(629/2000))/8 + 3/8,$
 $(51 \cdot \cos(323/1000) \cdot \exp(-57/200))/40 - (9 \cdot \exp(-57/200) \cdot \sin(323/1000))/8 + 3/8,$
 $(51 \cdot \cos(663/2000) \cdot \exp(-117/400))/40 - (9 \cdot \exp(-117/400) \cdot \sin(663/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/50) \cdot \exp(-3/10))/40 - (9 \cdot \exp(-3/10) \cdot \sin(17/50))/8 + 3/8,$
 $(51 \cdot \cos(697/2000) \cdot \exp(-123/400))/40 - (9 \cdot \exp(-123/400) \cdot \sin(697/2000))/8 + 3/8,$
 $(51 \cdot \cos(357/1000) \cdot \exp(-63/200))/40 - (9 \cdot \exp(-63/200) \cdot \sin(357/1000))/8 + 3/8,$
 $(51 \cdot \cos(731/2000) \cdot \exp(-129/400))/40 - (9 \cdot \exp(-129/400) \cdot \sin(731/2000))/8 + 3/8,$
 $(51 \cdot \cos(187/500) \cdot \exp(-33/100))/40 - (9 \cdot \exp(-33/100) \cdot \sin(187/500))/8 + 3/8,$
 $(51 \cdot \cos(153/400) \cdot \exp(-27/80))/40 - (9 \cdot \exp(-27/80) \cdot \sin(153/400))/8 + 3/8,$
 $(51 \cdot \cos(391/1000) \cdot \exp(-69/200))/40 - (9 \cdot \exp(-69/200) \cdot \sin(391/1000))/8 + 3/8,$
 $(51 \cdot \cos(799/2000) \cdot \exp(-141/400))/40 - (9 \cdot \exp(-141/400) \cdot \sin(799/2000))/8 + 3/8,$
 $(51 \cdot \cos(51/125) \cdot \exp(-9/25))/40 - (9 \cdot \exp(-9/25) \cdot \sin(51/125))/8 + 3/8,$
 $(51 \cdot \cos(833/2000) \cdot \exp(-147/400))/40 - (9 \cdot \exp(-147/400) \cdot \sin(833/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/40) \cdot \exp(-3/8))/40 - (9 \cdot \exp(-3/8) \cdot \sin(17/40))/8 + 3/8,$
 $(51 \cdot \cos(867/2000) \cdot \exp(-153/400))/40 - (9 \cdot \exp(-153/400) \cdot \sin(867/2000))/8 + 3/8,$
 $(51 \cdot \cos(221/500) \cdot \exp(-39/100))/40 - (9 \cdot \exp(-39/100) \cdot \sin(221/500))/8 + 3/8,$
 $(51 \cdot \cos(901/2000) \cdot \exp(-159/400))/40 - (9 \cdot \exp(-159/400) \cdot \sin(901/2000))/8 + 3/8,$
 $(51 \cdot \cos(459/1000) \cdot \exp(-81/200))/40 - (9 \cdot \exp(-81/200) \cdot \sin(459/1000))/8 + 3/8,$
 $(51 \cdot \cos(187/400) \cdot \exp(-33/80))/40 - (9 \cdot \exp(-33/80) \cdot \sin(187/400))/8 + 3/8,$
 $(51 \cdot \cos(119/250) \cdot \exp(-21/50))/40 - (9 \cdot \exp(-21/50) \cdot \sin(119/250))/8 + 3/8,$
 $(51 \cdot \cos(969/2000) \cdot \exp(-171/400))/40 - (9 \cdot \exp(-171/400) \cdot \sin(969/2000))/8 + 3/8,$
 $(51 \cdot \cos(493/1000) \cdot \exp(-87/200))/40 - (9 \cdot \exp(-87/200) \cdot \sin(493/1000))/8 + 3/8,$
 $(51 \cdot \cos(1003/2000) \cdot \exp(-177/400))/40 - (9 \cdot \exp(-177/400) \cdot \sin(1003/2000))/8 + 3/8,$
 $(51 \cdot \cos(51/100) \cdot \exp(-9/20))/40 - (9 \cdot \exp(-9/20) \cdot \sin(51/100))/8 + 3/8,$
 $(51 \cdot \cos(1037/2000) \cdot \exp(-183/400))/40 - (9 \cdot \exp(-183/400) \cdot \sin(1037/2000))/8 + 3/8,$
 $(51 \cdot \cos(527/1000) \cdot \exp(-93/200))/40 - (9 \cdot \exp(-93/200) \cdot \sin(527/1000))/8 + 3/8,$
 $(51 \cdot \cos(1071/2000) \cdot \exp(-189/400))/40 - (9 \cdot \exp(-189/400) \cdot \sin(1071/2000))/8 + 3/8,$
 $(51 \cdot \cos(68/125) \cdot \exp(-12/25))/40 - (9 \cdot \exp(-12/25) \cdot \sin(68/125))/8 + 3/8,$
 $(51 \cdot \cos(221/400) \cdot \exp(-39/80))/40 - (9 \cdot \exp(-39/80) \cdot \sin(221/400))/8 + 3/8,$
 $(51 \cdot \cos(561/1000) \cdot \exp(-99/200))/40 - (9 \cdot \exp(-99/200) \cdot \sin(561/1000))/8 + 3/8,$
 $(51 \cdot \cos(1139/2000) \cdot \exp(-201/400))/40 - (9 \cdot \exp(-201/400) \cdot \sin(1139/2000))/8 + 3/8,$
 $(51 \cdot \cos(289/500) \cdot \exp(-51/100))/40 - (9 \cdot \exp(-51/100) \cdot \sin(289/500))/8 + 3/8,$
 $(51 \cdot \cos(1173/2000) \cdot \exp(-207/400))/40 - (9 \cdot \exp(-207/400) \cdot \sin(1173/2000))/8 + 3/8,$
 $(51 \cdot \cos(119/200) \cdot \exp(-21/40))/40 - (9 \cdot \exp(-21/40) \cdot \sin(119/200))/8 + 3/8,$
 $(51 \cdot \cos(1207/2000) \cdot \exp(-213/400))/40 - (9 \cdot \exp(-213/400) \cdot \sin(1207/2000))/8 + 3/8,$

$(51 \cdot \cos(153/250) \cdot \exp(-27/50)) / 40 - (9 \cdot \exp(-27/50) \cdot \sin(153/250)) / 8 + 3/8,$
 $(51 \cdot \cos(1241/2000) \cdot \exp(-219/400)) / 40 - (9 \cdot \exp(-219/400) \cdot \sin(1241/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(629/1000) \cdot \exp(-111/200)) / 40 - (9 \cdot \exp(-111/200) \cdot \sin(629/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(51/80) \cdot \exp(-9/16)) / 40 - (9 \cdot \exp(-9/16) \cdot \sin(51/80)) / 8 + 3/8,$
 $(51 \cdot \cos(323/500) \cdot \exp(-57/100)) / 40 - (9 \cdot \exp(-57/100) \cdot \sin(323/500)) / 8 + 3/8,$
 $(51 \cdot \cos(1309/2000) \cdot \exp(-231/400)) / 40 - (9 \cdot \exp(-231/400) \cdot \sin(1309/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(663/1000) \cdot \exp(-117/200)) / 40 - (9 \cdot \exp(-117/200) \cdot \sin(663/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1343/2000) \cdot \exp(-237/400)) / 40 - (9 \cdot \exp(-237/400) \cdot \sin(1343/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(17/25) \cdot \exp(-3/5)) / 40 - (9 \cdot \exp(-3/5) \cdot \sin(17/25)) / 8 + 3/8,$
 $(51 \cdot \cos(1377/2000) \cdot \exp(-243/400)) / 40 - (9 \cdot \exp(-243/400) \cdot \sin(1377/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(697/1000) \cdot \exp(-123/200)) / 40 - (9 \cdot \exp(-123/200) \cdot \sin(697/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1411/2000) \cdot \exp(-249/400)) / 40 - (9 \cdot \exp(-249/400) \cdot \sin(1411/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(357/500) \cdot \exp(-63/100)) / 40 - (9 \cdot \exp(-63/100) \cdot \sin(357/500)) / 8 + 3/8,$
 $(51 \cdot \cos(289/400) \cdot \exp(-51/80)) / 40 - (9 \cdot \exp(-51/80) \cdot \sin(289/400)) / 8 + 3/8,$
 $(51 \cdot \cos(731/1000) \cdot \exp(-129/200)) / 40 - (9 \cdot \exp(-129/200) \cdot \sin(731/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1479/2000) \cdot \exp(-261/400)) / 40 - (9 \cdot \exp(-261/400) \cdot \sin(1479/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(187/250) \cdot \exp(-33/50)) / 40 - (9 \cdot \exp(-33/50) \cdot \sin(187/250)) / 8 + 3/8,$
 $(51 \cdot \cos(1513/2000) \cdot \exp(-267/400)) / 40 - (9 \cdot \exp(-267/400) \cdot \sin(1513/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(153/200) \cdot \exp(-27/40)) / 40 - (9 \cdot \exp(-27/40) \cdot \sin(153/200)) / 8 + 3/8,$
 $(51 \cdot \cos(1547/2000) \cdot \exp(-273/400)) / 40 - (9 \cdot \exp(-273/400) \cdot \sin(1547/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(391/500) \cdot \exp(-69/100)) / 40 - (9 \cdot \exp(-69/100) \cdot \sin(391/500)) / 8 + 3/8,$
 $(51 \cdot \cos(1581/2000) \cdot \exp(-279/400)) / 40 - (9 \cdot \exp(-279/400) \cdot \sin(1581/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(799/1000) \cdot \exp(-141/200)) / 40 - (9 \cdot \exp(-141/200) \cdot \sin(799/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(323/400) \cdot \exp(-57/80)) / 40 - (9 \cdot \exp(-57/80) \cdot \sin(323/400)) / 8 + 3/8,$
 $(51 \cdot \cos(102/125) \cdot \exp(-18/25)) / 40 - (9 \cdot \exp(-18/25) \cdot \sin(102/125)) / 8 + 3/8,$
 $(51 \cdot \cos(1649/2000) \cdot \exp(-291/400)) / 40 - (9 \cdot \exp(-291/400) \cdot \sin(1649/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(833/1000) \cdot \exp(-147/200)) / 40 - (9 \cdot \exp(-147/200) \cdot \sin(833/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1683/2000) \cdot \exp(-297/400)) / 40 - (9 \cdot \exp(-297/400) \cdot \sin(1683/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(17/20) \cdot \exp(-3/4)) / 40 - (9 \cdot \exp(-3/4) \cdot \sin(17/20)) / 8 + 3/8,$
 $(51 \cdot \cos(1717/2000) \cdot \exp(-303/400)) / 40 - (9 \cdot \exp(-303/400) \cdot \sin(1717/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(867/1000) \cdot \exp(-153/200)) / 40 - (9 \cdot \exp(-153/200) \cdot \sin(867/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1751/2000) \cdot \exp(-309/400)) / 40 - (9 \cdot \exp(-309/400) \cdot \sin(1751/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(221/250) \cdot \exp(-39/50)) / 40 - (9 \cdot \exp(-39/50) \cdot \sin(221/250)) / 8 + 3/8,$
 $(51 \cdot \cos(357/400) \cdot \exp(-63/80)) / 40 - (9 \cdot \exp(-63/80) \cdot \sin(357/400)) / 8 + 3/8,$
 $(51 \cdot \cos(901/1000) \cdot \exp(-159/200)) / 40 - (9 \cdot \exp(-159/200) \cdot \sin(901/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(1819/2000) \cdot \exp(-321/400)) / 40 - (9 \cdot \exp(-321/400) \cdot \sin(1819/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(459/500) \cdot \exp(-81/100)) / 40 - (9 \cdot \exp(-81/100) \cdot \sin(459/500)) / 8 + 3/8,$
 $(51 \cdot \cos(1853/2000) \cdot \exp(-327/400)) / 40 - (9 \cdot \exp(-327/400) \cdot \sin(1853/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(187/200) \cdot \exp(-33/40)) / 40 - (9 \cdot \exp(-33/40) \cdot \sin(187/200)) / 8 + 3/8,$
 $(51 \cdot \cos(1887/2000) \cdot \exp(-333/400)) / 40 - (9 \cdot \exp(-333/400) \cdot \sin(1887/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(119/125) \cdot \exp(-21/25)) / 40 - (9 \cdot \exp(-21/25) \cdot \sin(119/125)) / 8 + 3/8,$
 $(51 \cdot \cos(1921/2000) \cdot \exp(-339/400)) / 40 - (9 \cdot \exp(-339/400) \cdot \sin(1921/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(969/1000) \cdot \exp(-171/200)) / 40 - (9 \cdot \exp(-171/200) \cdot \sin(969/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(391/400) \cdot \exp(-69/80)) / 40 - (9 \cdot \exp(-69/80) \cdot \sin(391/400)) / 8 + 3/8,$
 $(51 \cdot \cos(493/500) \cdot \exp(-87/100)) / 40 - (9 \cdot \exp(-87/100) \cdot \sin(493/500)) / 8 + 3/8,$
 $(51 \cdot \cos(1989/2000) \cdot \exp(-351/400)) / 40 - (9 \cdot \exp(-351/400) \cdot \sin(1989/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(1003/1000) \cdot \exp(-177/200)) / 40 - (9 \cdot \exp(-177/200) \cdot \sin(1003/1000)) / 8 + 3/8,$
 $(51 \cdot \cos(2023/2000) \cdot \exp(-357/400)) / 40 - (9 \cdot \exp(-357/400) \cdot \sin(2023/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(51/50) \cdot \exp(-9/10)) / 40 - (9 \cdot \exp(-9/10) \cdot \sin(51/50)) / 8 + 3/8,$
 $(51 \cdot \cos(2057/2000) \cdot \exp(-363/400)) / 40 - (9 \cdot \exp(-363/400) \cdot \sin(2057/2000)) / 8 + 3/8,$
 $(51 \cdot \cos(1037/1000) \cdot \exp(-183/200)) / 40 - (9 \cdot \exp(-183/200) \cdot \sin(1037/1000)) / 8 + 3/8,$

$(51*\cos(2091/2000)*\exp(-369/400))/40 - (9*\exp(-369/400)*\sin(2091/2000))/8 + 3/8,$
 $(51*\cos(527/500)*\exp(-93/100))/40 - (9*\exp(-93/100)*\sin(527/500))/8 + 3/8,$
 $(51*\cos(17/16)*\exp(-15/16))/40 - (9*\exp(-15/16)*\sin(17/16))/8 + 3/8,$
 $(51*\cos(1071/1000)*\exp(-189/200))/40 - (9*\exp(-189/200)*\sin(1071/1000))/8 + 3/8,$
 $(51*\cos(2159/2000)*\exp(-381/400))/40 - (9*\exp(-381/400)*\sin(2159/2000))/8 + 3/8,$
 $(51*\cos(136/125)*\exp(-24/25))/40 - (9*\exp(-24/25)*\sin(136/125))/8 + 3/8,$
 $(51*\cos(2193/2000)*\exp(-387/400))/40 - (9*\exp(-387/400)*\sin(2193/2000))/8 + 3/8,$
 $(51*\cos(221/200)*\exp(-39/40))/40 - (9*\exp(-39/40)*\sin(221/200))/8 + 3/8,$
 $(51*\cos(2227/2000)*\exp(-393/400))/40 - (9*\exp(-393/400)*\sin(2227/2000))/8 + 3/8,$
 $(51*\cos(561/500)*\exp(-99/100))/40 - (9*\exp(-99/100)*\sin(561/500))/8 + 3/8,$
 $(51*\cos(2261/2000)*\exp(-399/400))/40 - (9*\exp(-399/400)*\sin(2261/2000))/8 + 3/8,$
 $(51*\cos(1139/1000)*\exp(-201/200))/40 - (9*\exp(-201/200)*\sin(1139/1000))/8 + 3/8,$
 $(51*\cos(459/400)*\exp(-81/80))/40 - (9*\exp(-81/80)*\sin(459/400))/8 + 3/8,$
 $(51*\cos(289/250)*\exp(-51/50))/40 - (9*\exp(-51/50)*\sin(289/250))/8 + 3/8,$
 $(51*\cos(2329/2000)*\exp(-411/400))/40 - (9*\exp(-411/400)*\sin(2329/2000))/8 + 3/8,$
 $(51*\cos(1173/1000)*\exp(-207/200))/40 - (9*\exp(-207/200)*\sin(1173/1000))/8 + 3/8,$
 $(51*\cos(2363/2000)*\exp(-417/400))/40 - (9*\exp(-417/400)*\sin(2363/2000))/8 + 3/8,$
 $(51*\cos(119/100)*\exp(-21/20))/40 - (9*\exp(-21/20)*\sin(119/100))/8 + 3/8,$
 $(51*\cos(2397/2000)*\exp(-423/400))/40 - (9*\exp(-423/400)*\sin(2397/2000))/8 + 3/8,$
 $(51*\cos(1207/1000)*\exp(-213/200))/40 - (9*\exp(-213/200)*\sin(1207/1000))/8 + 3/8,$
 $(51*\cos(2431/2000)*\exp(-429/400))/40 - (9*\exp(-429/400)*\sin(2431/2000))/8 + 3/8,$
 $(51*\cos(153/125)*\exp(-27/25))/40 - (9*\exp(-27/25)*\sin(153/125))/8 + 3/8,$
 $(51*\cos(493/400)*\exp(-87/80))/40 - (9*\exp(-87/80)*\sin(493/400))/8 + 3/8,$
 $(51*\cos(1241/1000)*\exp(-219/200))/40 - (9*\exp(-219/200)*\sin(1241/1000))/8 + 3/8,$
 $(51*\cos(2499/2000)*\exp(-441/400))/40 - (9*\exp(-441/400)*\sin(2499/2000))/8 + 3/8,$
 $(51*\cos(629/500)*\exp(-111/100))/40 - (9*\exp(-111/100)*\sin(629/500))/8 + 3/8,$
 $(51*\cos(2533/2000)*\exp(-447/400))/40 - (9*\exp(-447/400)*\sin(2533/2000))/8 + 3/8,$
 $(51*\cos(51/40)*\exp(-9/8))/40 - (9*\exp(-9/8)*\sin(51/40))/8 + 3/8,$
 $(51*\cos(2567/2000)*\exp(-453/400))/40 - (9*\exp(-453/400)*\sin(2567/2000))/8 + 3/8,$
 $(51*\cos(323/250)*\exp(-57/50))/40 - (9*\exp(-57/50)*\sin(323/250))/8 + 3/8,$
 $(51*\cos(2601/2000)*\exp(-459/400))/40 - (9*\exp(-459/400)*\sin(2601/2000))/8 + 3/8,$
 $(51*\cos(1309/1000)*\exp(-231/200))/40 - (9*\exp(-231/200)*\sin(1309/1000))/8 + 3/8,$
 $(51*\cos(527/400)*\exp(-93/80))/40 - (9*\exp(-93/80)*\sin(527/400))/8 + 3/8,$
 $(51*\cos(663/500)*\exp(-117/100))/40 - (9*\exp(-117/100)*\sin(663/500))/8 + 3/8,$
 $(51*\cos(2669/2000)*\exp(-471/400))/40 - (9*\exp(-471/400)*\sin(2669/2000))/8 + 3/8,$
 $(51*\cos(1343/1000)*\exp(-237/200))/40 - (9*\exp(-237/200)*\sin(1343/1000))/8 + 3/8,$
 $(51*\cos(2703/2000)*\exp(-477/400))/40 - (9*\exp(-477/400)*\sin(2703/2000))/8 + 3/8,$
 $(51*\cos(34/25)*\exp(-6/5))/40 - (9*\exp(-6/5)*\sin(34/25))/8 + 3/8,$
 $(51*\cos(2737/2000)*\exp(-483/400))/40 - (9*\exp(-483/400)*\sin(2737/2000))/8 + 3/8,$
 $(51*\cos(1377/1000)*\exp(-243/200))/40 - (9*\exp(-243/200)*\sin(1377/1000))/8 + 3/8,$
 $(51*\cos(2771/2000)*\exp(-489/400))/40 - (9*\exp(-489/400)*\sin(2771/2000))/8 + 3/8,$
 $(51*\cos(697/500)*\exp(-123/100))/40 - (9*\exp(-123/100)*\sin(697/500))/8 + 3/8,$
 $(51*\cos(561/400)*\exp(-99/80))/40 - (9*\exp(-99/80)*\sin(561/400))/8 + 3/8,$
 $(51*\cos(1411/1000)*\exp(-249/200))/40 - (9*\exp(-249/200)*\sin(1411/1000))/8 + 3/8,$
 $(51*\cos(2839/2000)*\exp(-501/400))/40 - (9*\exp(-501/400)*\sin(2839/2000))/8 + 3/8,$
 $(51*\cos(357/250)*\exp(-63/50))/40 - (9*\exp(-63/50)*\sin(357/250))/8 + 3/8,$
 $(51*\cos(2873/2000)*\exp(-507/400))/40 - (9*\exp(-507/400)*\sin(2873/2000))/8 + 3/8,$
 $(51*\cos(289/200)*\exp(-51/40))/40 - (9*\exp(-51/40)*\sin(289/200))/8 + 3/8,$
 $(51*\cos(2907/2000)*\exp(-513/400))/40 - (9*\exp(-513/400)*\sin(2907/2000))/8 + 3/8,$
 $(51*\cos(731/500)*\exp(-129/100))/40 - (9*\exp(-129/100)*\sin(731/500))/8 + 3/8,$
 $(51*\cos(2941/2000)*\exp(-519/400))/40 - (9*\exp(-519/400)*\sin(2941/2000))/8 + 3/8,$

$(51 \cdot \cos(1479/1000) \cdot \exp(-261/200))/40 - (9 \cdot \exp(-261/200) \cdot \sin(1479/1000))/8 + 3/8,$
 $(51 \cdot \cos(119/80) \cdot \exp(-21/16))/40 - (9 \cdot \exp(-21/16) \cdot \sin(119/80))/8 + 3/8,$
 $(51 \cdot \cos(187/125) \cdot \exp(-33/25))/40 - (9 \cdot \exp(-33/25) \cdot \sin(187/125))/8 + 3/8,$
 $(51 \cdot \cos(3009/2000) \cdot \exp(-531/400))/40 - (9 \cdot \exp(-531/400) \cdot \sin(3009/2000))/8 + 3/8,$
 $(51 \cdot \cos(1513/1000) \cdot \exp(-267/200))/40 - (9 \cdot \exp(-267/200) \cdot \sin(1513/1000))/8 + 3/8,$
 $(51 \cdot \cos(3043/2000) \cdot \exp(-537/400))/40 - (9 \cdot \exp(-537/400) \cdot \sin(3043/2000))/8 + 3/8,$
 $(51 \cdot \cos(153/100) \cdot \exp(-27/20))/40 - (9 \cdot \exp(-27/20) \cdot \sin(153/100))/8 + 3/8,$
 $(51 \cdot \cos(3077/2000) \cdot \exp(-543/400))/40 - (9 \cdot \exp(-543/400) \cdot \sin(3077/2000))/8 + 3/8,$
 $(51 \cdot \cos(1547/1000) \cdot \exp(-273/200))/40 - (9 \cdot \exp(-273/200) \cdot \sin(1547/1000))/8 + 3/8,$
 $(51 \cdot \cos(3111/2000) \cdot \exp(-549/400))/40 - (9 \cdot \exp(-549/400) \cdot \sin(3111/2000))/8 + 3/8,$
 $(51 \cdot \cos(391/250) \cdot \exp(-69/50))/40 - (9 \cdot \exp(-69/50) \cdot \sin(391/250))/8 + 3/8,$
 $(51 \cdot \cos(629/400) \cdot \exp(-111/80))/40 - (9 \cdot \exp(-111/80) \cdot \sin(629/400))/8 + 3/8,$
 $(51 \cdot \cos(1581/1000) \cdot \exp(-279/200))/40 - (9 \cdot \exp(-279/200) \cdot \sin(1581/1000))/8 + 3/8,$
 $(51 \cdot \cos(3179/2000) \cdot \exp(-561/400))/40 - (9 \cdot \exp(-561/400) \cdot \sin(3179/2000))/8 + 3/8,$
 $(51 \cdot \cos(799/500) \cdot \exp(-141/100))/40 - (9 \cdot \exp(-141/100) \cdot \sin(799/500))/8 + 3/8,$
 $(51 \cdot \cos(3213/2000) \cdot \exp(-567/400))/40 - (9 \cdot \exp(-567/400) \cdot \sin(3213/2000))/8 + 3/8,$
 $(51 \cdot \cos(323/200) \cdot \exp(-57/40))/40 - (9 \cdot \exp(-57/40) \cdot \sin(323/200))/8 + 3/8,$
 $(51 \cdot \cos(3247/2000) \cdot \exp(-573/400))/40 - (9 \cdot \exp(-573/400) \cdot \sin(3247/2000))/8 + 3/8,$
 $(51 \cdot \cos(204/125) \cdot \exp(-36/25))/40 - (9 \cdot \exp(-36/25) \cdot \sin(204/125))/8 + 3/8,$
 $(51 \cdot \cos(3281/2000) \cdot \exp(-579/400))/40 - (9 \cdot \exp(-579/400) \cdot \sin(3281/2000))/8 + 3/8,$
 $(51 \cdot \cos(1649/1000) \cdot \exp(-291/200))/40 - (9 \cdot \exp(-291/200) \cdot \sin(1649/1000))/8 + 3/8,$
 $(51 \cdot \cos(663/400) \cdot \exp(-117/80))/40 - (9 \cdot \exp(-117/80) \cdot \sin(663/400))/8 + 3/8,$
 $(51 \cdot \cos(833/500) \cdot \exp(-147/100))/40 - (9 \cdot \exp(-147/100) \cdot \sin(833/500))/8 + 3/8,$
 $(51 \cdot \cos(3349/2000) \cdot \exp(-591/400))/40 - (9 \cdot \exp(-591/400) \cdot \sin(3349/2000))/8 + 3/8,$
 $(51 \cdot \cos(1683/1000) \cdot \exp(-297/200))/40 - (9 \cdot \exp(-297/200) \cdot \sin(1683/1000))/8 + 3/8,$
 $(51 \cdot \cos(3383/2000) \cdot \exp(-597/400))/40 - (9 \cdot \exp(-597/400) \cdot \sin(3383/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/10) \cdot \exp(-3/2))/40 - (9 \cdot \exp(-3/2) \cdot \sin(17/10))/8 + 3/8,$
 $(51 \cdot \cos(3417/2000) \cdot \exp(-603/400))/40 - (9 \cdot \exp(-603/400) \cdot \sin(3417/2000))/8 + 3/8,$
 $(51 \cdot \cos(1717/1000) \cdot \exp(-303/200))/40 - (9 \cdot \exp(-303/200) \cdot \sin(1717/1000))/8 + 3/8,$
 $(51 \cdot \cos(3451/2000) \cdot \exp(-609/400))/40 - (9 \cdot \exp(-609/400) \cdot \sin(3451/2000))/8 + 3/8,$
 $(51 \cdot \cos(867/500) \cdot \exp(-153/100))/40 - (9 \cdot \exp(-153/100) \cdot \sin(867/500))/8 + 3/8,$
 $(51 \cdot \cos(697/400) \cdot \exp(-123/80))/40 - (9 \cdot \exp(-123/80) \cdot \sin(697/400))/8 + 3/8,$
 $(51 \cdot \cos(1751/1000) \cdot \exp(-309/200))/40 - (9 \cdot \exp(-309/200) \cdot \sin(1751/1000))/8 + 3/8,$
 $(51 \cdot \cos(3519/2000) \cdot \exp(-621/400))/40 - (9 \cdot \exp(-621/400) \cdot \sin(3519/2000))/8 + 3/8,$
 $(51 \cdot \cos(221/125) \cdot \exp(-39/25))/40 - (9 \cdot \exp(-39/25) \cdot \sin(221/125))/8 + 3/8,$
 $(51 \cdot \cos(3553/2000) \cdot \exp(-627/400))/40 - (9 \cdot \exp(-627/400) \cdot \sin(3553/2000))/8 + 3/8,$
 $(51 \cdot \cos(357/200) \cdot \exp(-63/40))/40 - (9 \cdot \exp(-63/40) \cdot \sin(357/200))/8 + 3/8,$
 $(51 \cdot \cos(3587/2000) \cdot \exp(-633/400))/40 - (9 \cdot \exp(-633/400) \cdot \sin(3587/2000))/8 + 3/8,$
 $(51 \cdot \cos(901/500) \cdot \exp(-159/100))/40 - (9 \cdot \exp(-159/100) \cdot \sin(901/500))/8 + 3/8,$
 $(51 \cdot \cos(3621/2000) \cdot \exp(-639/400))/40 - (9 \cdot \exp(-639/400) \cdot \sin(3621/2000))/8 + 3/8,$
 $(51 \cdot \cos(1819/1000) \cdot \exp(-321/200))/40 - (9 \cdot \exp(-321/200) \cdot \sin(1819/1000))/8 + 3/8,$
 $(51 \cdot \cos(731/400) \cdot \exp(-129/80))/40 - (9 \cdot \exp(-129/80) \cdot \sin(731/400))/8 + 3/8,$
 $(51 \cdot \cos(459/250) \cdot \exp(-81/50))/40 - (9 \cdot \exp(-81/50) \cdot \sin(459/250))/8 + 3/8,$
 $(51 \cdot \cos(3689/2000) \cdot \exp(-651/400))/40 - (9 \cdot \exp(-651/400) \cdot \sin(3689/2000))/8 + 3/8,$
 $(51 \cdot \cos(1853/1000) \cdot \exp(-327/200))/40 - (9 \cdot \exp(-327/200) \cdot \sin(1853/1000))/8 + 3/8,$
 $(51 \cdot \cos(3723/2000) \cdot \exp(-657/400))/40 - (9 \cdot \exp(-657/400) \cdot \sin(3723/2000))/8 + 3/8,$
 $(51 \cdot \cos(187/100) \cdot \exp(-33/20))/40 - (9 \cdot \exp(-33/20) \cdot \sin(187/100))/8 + 3/8,$
 $(51 \cdot \cos(3757/2000) \cdot \exp(-663/400))/40 - (9 \cdot \exp(-663/400) \cdot \sin(3757/2000))/8 + 3/8,$
 $(51 \cdot \cos(1887/1000) \cdot \exp(-333/200))/40 - (9 \cdot \exp(-333/200) \cdot \sin(1887/1000))/8 + 3/8,$
 $(51 \cdot \cos(3791/2000) \cdot \exp(-669/400))/40 - (9 \cdot \exp(-669/400) \cdot \sin(3791/2000))/8 + 3/8,$
 $(51 \cdot \cos(238/125) \cdot \exp(-42/25))/40 - (9 \cdot \exp(-42/25) \cdot \sin(238/125))/8 + 3/8,$

$(51*\cos(153/80)*\exp(-27/16))/40 - (9*\exp(-27/16)*\sin(153/80))/8 + 3/8,$
 $(51*\cos(1921/1000)*\exp(-339/200))/40 - (9*\exp(-339/200)*\sin(1921/1000))/8 + 3/8,$
 $(51*\cos(3859/2000)*\exp(-681/400))/40 - (9*\exp(-681/400)*\sin(3859/2000))/8 + 3/8,$
 $(51*\cos(969/500)*\exp(-171/100))/40 - (9*\exp(-171/100)*\sin(969/500))/8 + 3/8,$
 $(51*\cos(3893/2000)*\exp(-687/400))/40 - (9*\exp(-687/400)*\sin(3893/2000))/8 + 3/8,$
 $(51*\cos(391/200)*\exp(-69/40))/40 - (9*\exp(-69/40)*\sin(391/200))/8 + 3/8,$
 $(51*\cos(3927/2000)*\exp(-693/400))/40 - (9*\exp(-693/400)*\sin(3927/2000))/8 + 3/8,$
 $(51*\cos(493/250)*\exp(-87/50))/40 - (9*\exp(-87/50)*\sin(493/250))/8 + 3/8,$
 $(51*\cos(3961/2000)*\exp(-699/400))/40 - (9*\exp(-699/400)*\sin(3961/2000))/8 + 3/8,$
 $(51*\cos(1989/1000)*\exp(-351/200))/40 - (9*\exp(-351/200)*\sin(1989/1000))/8 + 3/8,$
 $(51*\cos(799/400)*\exp(-141/80))/40 - (9*\exp(-141/80)*\sin(799/400))/8 + 3/8,$
 $(51*\cos(1003/500)*\exp(-177/100))/40 - (9*\exp(-177/100)*\sin(1003/500))/8 + 3/8,$
 $(51*\cos(4029/2000)*\exp(-711/400))/40 - (9*\exp(-711/400)*\sin(4029/2000))/8 + 3/8,$
 $(51*\cos(2023/1000)*\exp(-357/200))/40 - (9*\exp(-357/200)*\sin(2023/1000))/8 + 3/8,$
 $(51*\cos(4063/2000)*\exp(-717/400))/40 - (9*\exp(-717/400)*\sin(4063/2000))/8 + 3/8,$
 $(51*\cos(51/25)*\exp(-9/5))/40 - (9*\exp(-9/5)*\sin(51/25))/8 + 3/8,$
 $(51*\cos(4097/2000)*\exp(-723/400))/40 - (9*\exp(-723/400)*\sin(4097/2000))/8 + 3/8,$
 $(51*\cos(2057/1000)*\exp(-363/200))/40 - (9*\exp(-363/200)*\sin(2057/1000))/8 + 3/8,$
 $(51*\cos(4131/2000)*\exp(-729/400))/40 - (9*\exp(-729/400)*\sin(4131/2000))/8 + 3/8,$
 $(51*\cos(1037/500)*\exp(-183/100))/40 - (9*\exp(-183/100)*\sin(1037/500))/8 + 3/8,$
 $(51*\cos(833/400)*\exp(-147/80))/40 - (9*\exp(-147/80)*\sin(833/400))/8 + 3/8,$
 $(51*\cos(2091/1000)*\exp(-369/200))/40 - (9*\exp(-369/200)*\sin(2091/1000))/8 + 3/8,$
 $(51*\cos(4199/2000)*\exp(-741/400))/40 - (9*\exp(-741/400)*\sin(4199/2000))/8 + 3/8,$
 $(51*\cos(527/250)*\exp(-93/50))/40 - (9*\exp(-93/50)*\sin(527/250))/8 + 3/8,$
 $(51*\cos(4233/2000)*\exp(-747/400))/40 - (9*\exp(-747/400)*\sin(4233/2000))/8 + 3/8,$
 $(51*\cos(17/8)*\exp(-15/8))/40 - (9*\exp(-15/8)*\sin(17/8))/8 + 3/8]$

p =

Columns 1 through 7

1.6500 1.6309 1.6120 1.5932 1.5745 1.5559 1.5375

Columns 8 through 14

1.5192 1.5010 1.4829 1.4650 1.4472 1.4295 1.4120

Columns 15 through 21

1.3945 1.3773 1.3601 1.3431 1.3262 1.3094 1.2928

Columns 22 through 28

1.2763 1.2599 1.2436 1.2275 1.2115 1.1957 1.1800

Columns 29 through 35

1.1644 1.1489 1.1336 1.1184 1.1033 1.0884 1.0736

Columns 36 through 42

1.0589 1.0444 1.0300 1.0157 1.0016 0.9875 0.9737

Columns 43 through 49

0.9599 0.9463 0.9328 0.9194 0.9062 0.8931 0.8801

Columns 50 through 56

0.8673 0.8545 0.8419 0.8295 0.8171 0.8049 0.7929

Columns 57 through 63

0.7809 0.7691 0.7574 0.7458 0.7343 0.7230 0.7118

Columns 64 through 70

0.7007 0.6898 0.6789 0.6682 0.6576 0.6472 0.6368

Columns 71 through 77

0.6266 0.6165 0.6065 0.5966 0.5869 0.5773 0.5678

Columns 78 through 84

0.5584 0.5491 0.5399 0.5309 0.5219 0.5131 0.5044

Columns 85 through 91

0.4958 0.4873 0.4790 0.4707 0.4626 0.4545 0.4466

Columns 92 through 98

0.4388 0.4311 0.4235 0.4160 0.4086 0.4013 0.3942

Columns 99 through 105

0.3871 0.3801 0.3732 0.3665 0.3598 0.3533 0.3468

Columns 106 through 112

0.3404 0.3342 0.3280 0.3220 0.3160 0.3101 0.3043

Columns 113 through 119

0.2987 0.2931 0.2876 0.2822 0.2769 0.2717 0.2665

Columns 120 through 126

0.2615 0.2566 0.2517 0.2469 0.2422 0.2377 0.2331

Columns 127 through 133

0.2287 0.2244 0.2201 0.2160 0.2119 0.2079 0.2039

Columns 134 through 140

0.2001 0.1963 0.1926 0.1890 0.1855 0.1820 0.1786

Columns 141 through 147

0.1753 0.1721 0.1690 0.1659 0.1629 0.1599 0.1571

Columns 148 through 154

0.1543 0.1515 0.1489 0.1463 0.1438 0.1413 0.1389

Columns 155 through 161

0.1366 0.1343 0.1322 0.1300 0.1280 0.1260 0.1240

Columns 162 through 168

0.1221 0.1203 0.1185 0.1168 0.1152 0.1136 0.1121

Columns 169 through 175

0.1106 0.1092 0.1078 0.1065 0.1053 0.1041 0.1029

Columns 176 through 182

0.1018 0.1008 0.0998 0.0988 0.0979 0.0971 0.0963

Columns 183 through 189

0.0955 0.0948 0.0942 0.0935 0.0930 0.0925 0.0920

Columns 190 through 196

0.0915 0.0911 0.0908 0.0905 0.0902 0.0900 0.0898

Columns 197 through 203

0.0896 0.0895 0.0895 0.0894 0.0894 0.0895 0.0895

Columns 204 through 210

0.0896 0.0898 0.0900 0.0902 0.0904 0.0907 0.0910

Columns 211 through 217

0.0913 0.0917 0.0921 0.0925 0.0930 0.0935 0.0940

Columns 218 through 224

0.0946 0.0951 0.0957 0.0964 0.0970 0.0977 0.0984

Columns 225 through 231

0.0991 0.0999 0.1007 0.1015 0.1023 0.1032 0.1040

Columns 232 through 238

0.1049 0.1058 0.1068 0.1077 0.1087 0.1097 0.1107

Columns 239 through 245

0.1117 0.1128 0.1138 0.1149 0.1160 0.1171 0.1183

Columns 246 through 251

0.1194 0.1206 0.1218 0.1230 0.1242 0.1254

a =

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

an =

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

(153*cos(17/40)*exp(-3/8))/80 - (6*exp(-3/8)*sin(17/40))/25, -
(153*cos(867/2000)*exp(-153/400))/80 - (6*exp(-153/400)*sin(867/2000))/25, -
(153*cos(221/500)*exp(-39/100))/80 - (6*exp(-39/100)*sin(221/500))/25, -
(153*cos(901/2000)*exp(-159/400))/80 - (6*exp(-159/400)*sin(901/2000))/25, -
(153*cos(459/1000)*exp(-81/200))/80 - (6*exp(-81/200)*sin(459/1000))/25, -
(153*cos(187/400)*exp(-33/80))/80 - (6*exp(-33/80)*sin(187/400))/25, -
(153*cos(119/250)*exp(-21/50))/80 - (6*exp(-21/50)*sin(119/250))/25, -
(153*cos(969/2000)*exp(-171/400))/80 - (6*exp(-171/400)*sin(969/2000))/25, -
(153*cos(493/1000)*exp(-87/200))/80 - (6*exp(-87/200)*sin(493/1000))/25, -
(153*cos(1003/2000)*exp(-177/400))/80 - (6*exp(-177/400)*sin(1003/2000))/25, -
(153*cos(51/100)*exp(-9/20))/80 - (6*exp(-9/20)*sin(51/100))/25, -
(153*cos(1037/2000)*exp(-183/400))/80 - (6*exp(-183/400)*sin(1037/2000))/25, -
(153*cos(527/1000)*exp(-93/200))/80 - (6*exp(-93/200)*sin(527/1000))/25, -
(153*cos(1071/2000)*exp(-189/400))/80 - (6*exp(-189/400)*sin(1071/2000))/25, -
(153*cos(68/125)*exp(-12/25))/80 - (6*exp(-12/25)*sin(68/125))/25, -
(153*cos(221/400)*exp(-39/80))/80 - (6*exp(-39/80)*sin(221/400))/25, -
(153*cos(561/1000)*exp(-99/200))/80 - (6*exp(-99/200)*sin(561/1000))/25, -
(153*cos(1139/2000)*exp(-201/400))/80 - (6*exp(-201/400)*sin(1139/2000))/25, -
(153*cos(289/500)*exp(-51/100))/80 - (6*exp(-51/100)*sin(289/500))/25, -
(153*cos(1173/2000)*exp(-207/400))/80 - (6*exp(-207/400)*sin(1173/2000))/25, -
(153*cos(119/200)*exp(-21/40))/80 - (6*exp(-21/40)*sin(119/200))/25, -
(153*cos(1207/2000)*exp(-213/400))/80 - (6*exp(-213/400)*sin(1207/2000))/25, -
(153*cos(153/250)*exp(-27/50))/80 - (6*exp(-27/50)*sin(153/250))/25, -
(153*cos(1241/2000)*exp(-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, -
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(153*cos(1513/2000)*exp(-267/400))/80 - (6*exp(-267/400)*sin(1513/2000))/25, -
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(153*cos(2261/2000)*exp(-399/400))/80 - (6*exp(-399/400)*sin(2261/2000))/25, -
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(153*cos(459/400)*exp(-81/80))/80 - (6*exp(-81/80)*sin(459/400))/25, -
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t =

Columns 1 through 7

-1.9125 -1.9002 -1.8878 -1.8753 -1.8628 -1.8503 -1.8377

Columns 8 through 14

-1.8250 -1.8123 -1.7996 -1.7868 -1.7740 -1.7611 -1.7483

Columns 15 through 21

-1.7353 -1.7224 -1.7094 -1.6964 -1.6834 -1.6704 -1.6573

Columns 22 through 28

-1.6442 -1.6312 -1.6181 -1.6049 -1.5918 -1.5787 -1.5655

Columns 29 through 35

-1.5524 -1.5393 -1.5261 -1.5130 -1.4998 -1.4867 -1.4736

Columns 36 through 42

-1.4604 -1.4473 -1.4342 -1.4211 -1.4081 -1.3950 -1.3820

Columns 43 through 49

-1.3689 -1.3559 -1.3429 -1.3300 -1.3170 -1.3041 -1.2912

Columns 50 through 56

-1.2784 -1.2655 -1.2527 -1.2399 -1.2272 -1.2145 -1.2018

Columns 57 through 63

-1.1892 -1.1766 -1.1640 -1.1515 -1.1390 -1.1265 -1.1141

Columns 64 through 70

-1.1018 -1.0895 -1.0772 -1.0649 -1.0528 -1.0406 -1.0285

Columns 71 through 77

-1.0165 -1.0045 -0.9926 -0.9807 -0.9688 -0.9571 -0.9453

Columns 78 through 84

-0.9337 -0.9220 -0.9105 -0.8990 -0.8875 -0.8761 -0.8648

Columns 85 through 91

-0.8535 -0.8423 -0.8311 -0.8200 -0.8090 -0.7980 -0.7871

Columns 92 through 98

-0.7762 -0.7654 -0.7547 -0.7440 -0.7334 -0.7229 -0.7124

Columns 99 through 105

-0.7020 -0.6917 -0.6814 -0.6712 -0.6610 -0.6510 -0.6410

Columns 106 through 112

-0.6310 -0.6211 -0.6113 -0.6016 -0.5919 -0.5823 -0.5728

Columns 113 through 119

-0.5633 -0.5539 -0.5446 -0.5353 -0.5262 -0.5170 -0.5080

Columns 120 through 126

-0.4990 -0.4901 -0.4813 -0.4725 -0.4638 -0.4552 -0.4466

Columns 127 through 133

-0.4381 -0.4297 -0.4214 -0.4131 -0.4049 -0.3967 -0.3887

Columns 134 through 140

-0.3807 -0.3728 -0.3649 -0.3571 -0.3494 -0.3418 -0.3342

Columns 141 through 147

-0.3267 -0.3193 -0.3119 -0.3046 -0.2974 -0.2902 -0.2832

Columns 148 through 154

-0.2762 -0.2692 -0.2623 -0.2555 -0.2488 -0.2421 -0.2355

Columns 155 through 161

-0.2290 -0.2225 -0.2161 -0.2098 -0.2035 -0.1973 -0.1912

Columns 162 through 168

-0.1852 -0.1792 -0.1732 -0.1674 -0.1616 -0.1558 -0.1502

Columns 169 through 175

-0.1446 -0.1391 -0.1336 -0.1282 -0.1228 -0.1176 -0.1123

Columns 176 through 182

-0.1072 -0.1021 -0.0971 -0.0921 -0.0872 -0.0824 -0.0776

Columns 183 through 189

-0.0729 -0.0682 -0.0636 -0.0591 -0.0546 -0.0502 -0.0459

Columns 190 through 196

-0.0416 -0.0373 -0.0332 -0.0290 -0.0250 -0.0210 -0.0170

Columns 197 through 203

-0.0131 -0.0093 -0.0055 -0.0018 0.0019 0.0055 0.0091

Columns 204 through 210

0.0126 0.0160 0.0194 0.0228 0.0260 0.0293 0.0325

Columns 211 through 217

0.0356 0.0387 0.0417 0.0447 0.0476 0.0505 0.0534

Columns 218 through 224

0.0562 0.0589 0.0616 0.0642 0.0668 0.0694 0.0719

Columns 225 through 231

0.0743 0.0767 0.0791 0.0814 0.0837 0.0859 0.0881

Columns 232 through 238

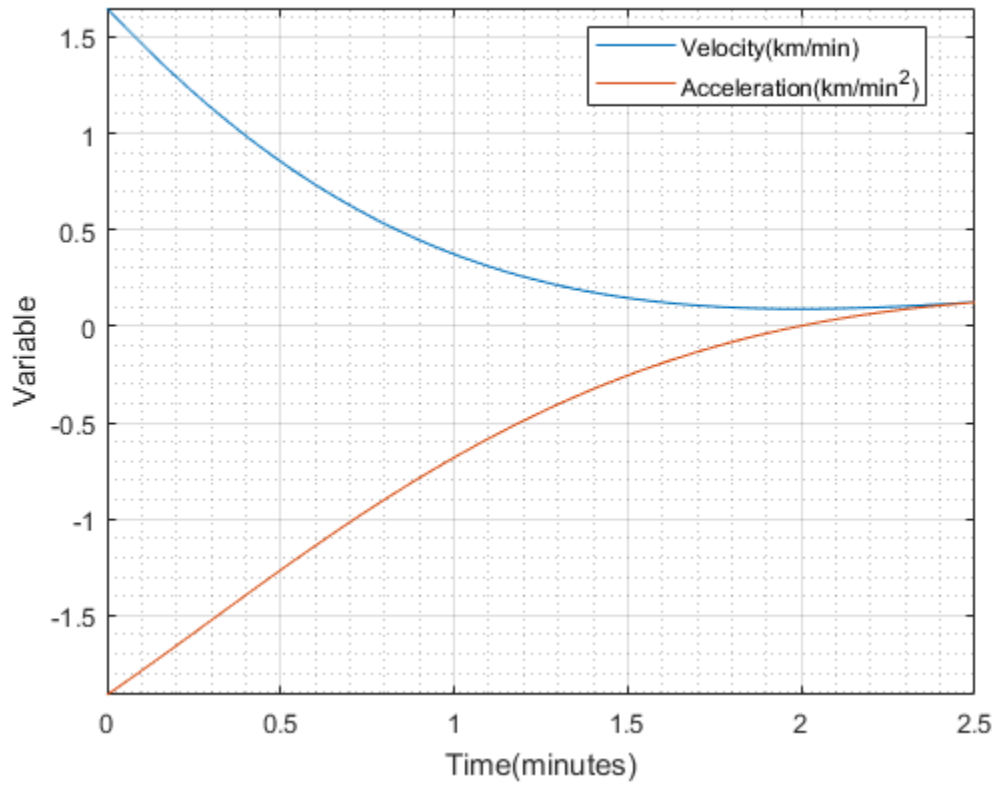
0.0902 0.0923 0.0944 0.0964 0.0983 0.1003 0.1022

Columns 239 through 245

0.1040 0.1058 0.1076 0.1093 0.1110 0.1126 0.1142

Columns 246 through 251

0.1158 0.1173 0.1188 0.1203 0.1217 0.1231



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QUESTION 4C

```
commandwindow

clear

clc

clear all
syms x
y=5*power(sin(5*x),5)
V=int(pi*y^2)
d=int(V,0,pi)
k=double(d)
```

y =

$$5*\sin(5*x)^5$$

V =

$$(pi*(12600*x - 2100*\sin(10*x) + 600*\sin(20*x) - 150*\sin(30*x) + 25*\sin(40*x) - 2*\sin(50*x)))/2048$$

d =

$$(1575*pi^3)/512$$

k =

$$95.3806$$