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MATRIC: 16/ENG07/023

DEPT:PETROLEUM ENGINEERING.

DATE: 20th November,2017.

(A) 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]
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
4
```

X =

```
9
```

-1

-2

7

(B)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]
```

```
dn=subs(d,tn)
```

```
v=diff(d)
```

```
vn=subs(v,tn)
```

```
a=diff(v)
```

```
an=subs(a,tn)
```

```
figure(1)
```

```
plot(tn,vn,tn,an)
```

```
xlabel('time(min)')
```

```
ylabel('variable')
```

```
axis tight
```

```
grid on
```

```
grid minor
```

```
legend('velocity(m/min)', 'acceleration(m/min^2)', ('location'), ('best'))
```

d =

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

tn =

Columns 1 through 4

0

0.01

0.02

0.03

Columns 5 through 8

0.04 0.05 0.06 0.07

Columns 9 through 12

0.08 0.09 0.1 0.11

Columns 13 through 16

0.12 0.13 0.14 0.15

Columns 17 through 20

0.16 0.17 0.18 0.19

Columns 21 through 24

0.2 0.21 0.22 0.23

Columns 25 through 28

0.24 0.25 0.26 0.27

Columns 29 through 32

0.28	0.29	0.3	0.31
------	------	-----	------

Columns 33 through 36

0.32	0.33	0.34	0.35
------	------	------	------

Columns 37 through 40

0.36	0.37	0.38	0.39
------	------	------	------

Columns 41 through 44

0.4	0.41	0.42	0.43
-----	------	------	------

Columns 45 through 48

0.44	0.45	0.46	0.47
------	------	------	------

Columns 49 through 52

0.48	0.49	0.5	0.51
------	------	-----	------

Columns 53 through 56

0.52 0.53 0.54 0.55

Columns 57 through 60

0.56 0.57 0.58 0.59

Columns 61 through 64

0.6 0.61 0.62 0.63

Columns 65 through 68

0.64 0.65 0.66 0.67

Columns 69 through 72

0.68 0.69 0.7 0.71

Columns 73 through 76

0.72 0.73 0.74 0.75

Columns 77 through 80

0.76 0.77 0.78 0.79

Columns 81 through 84

0.8 0.81 0.82 0.83

Columns 85 through 88

0.84 0.85 0.86 0.87

Columns 89 through 92

0.88 0.89 0.9 0.91

Columns 93 through 96

0.92 0.93 0.94 0.95

Columns 97 through 100

0.96 0.97 0.98 0.99

Columns 101 through 104

1 1.01 1.02 1.03

Columns 105 through 108

1.04	1.05	1.06	1.07
------	------	------	------

Columns 109 through 112

1.08	1.09	1.1	1.11
------	------	-----	------

Columns 113 through 116

1.12	1.13	1.14	1.15
------	------	------	------

Columns 117 through 120

1.16	1.17	1.18	1.19
------	------	------	------

Columns 121 through 124

1.2	1.21	1.22	1.23
-----	------	------	------

Columns 125 through 128

1.24	1.25	1.26	1.27
------	------	------	------

Columns 129 through 132

1.28 1.29 1.3 1.31

Columns 133 through 136

1.32 1.33 1.34 1.35

Columns 137 through 140

1.36 1.37 1.38 1.39

Columns 141 through 144

1.4 1.41 1.42 1.43

Columns 145 through 148

1.44 1.45 1.46 1.47

Columns 149 through 152

1.48 1.49 1.5 1.51

Columns 153 through 156

1.52 1.53 1.54 1.55

Columns 157 through 160

1.56 1.57 1.58 1.59

Columns 161 through 164

1.6 1.61 1.62 1.63

Columns 165 through 168

1.64 1.65 1.66 1.67

Columns 169 through 172

1.68 1.69 1.7 1.71

Columns 173 through 176

1.72 1.73 1.74 1.75

Columns 177 through 180

1.76 1.77 1.78 1.79

Columns 181 through 184

1.8 1.81 1.82 1.83

Columns 185 through 188

1.84 1.85 1.86 1.87

Columns 189 through 192

1.88 1.89 1.9 1.91

Columns 193 through 196

1.92 1.93 1.94 1.95

Columns 197 through 200

1.96 1.97 1.98 1.99

Columns 201 through 204

2 2.01 2.02 2.03

Columns 205 through 208

2.04 2.05 2.06 2.07

Columns 209 through 212

2.08 2.09 2.1 2.11

Columns 213 through 216

2.12 2.13 2.14 2.15

Columns 217 through 220

2.16 2.17 2.18 2.19

Columns 221 through 224

2.2 2.21 2.22 2.23

Columns 225 through 228

2.24 2.25 2.26 2.27

Columns 229 through 232

2.28	2.29	2.3	2.31
------	------	-----	------

Columns 233 through 236

2.32	2.33	2.34	2.35
------	------	------	------

Columns 237 through 240

2.36	2.37	2.38	2.39
------	------	------	------

Columns 241 through 244

2.4	2.41	2.42	2.43
-----	------	------	------

Columns 245 through 248

2.44	2.45	2.46	2.47
------	------	------	------

Columns 249 through 251

2.48	2.49	2.5
------	------	-----

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(-

$237/400 \cdot \sin(1343/2000))/2 + 237/800, (3 \cdot \exp(-3/5) \cdot \sin(17/25))/2 + 3/10, (3 \cdot \exp(-$
 $243/400 \cdot \sin(1377/2000))/2 + 243/800, (3 \cdot \exp(-123/200) \cdot \sin(697/1000))/2 + 123/400, (3 \cdot \exp(-$
 $249/400 \cdot \sin(1411/2000))/2 + 249/800, (3 \cdot \exp(-63/100) \cdot \sin(357/500))/2 + 63/200, (3 \cdot \exp(-$
 $51/80) \cdot \sin(289/400))/2 + 51/160, (3 \cdot \exp(-129/200) \cdot \sin(731/1000))/2 + 129/400, (3 \cdot \exp(-$
 $261/400) \cdot \sin(1479/2000))/2 + 261/800, (3 \cdot \exp(-33/50) \cdot \sin(187/250))/2 + 33/100, (3 \cdot \exp(-$
 $267/400) \cdot \sin(1513/2000))/2 + 267/800, (3 \cdot \exp(-27/40) \cdot \sin(153/200))/2 + 27/80, (3 \cdot \exp(-$
 $273/400) \cdot \sin(1547/2000))/2 + 273/800, (3 \cdot \exp(-69/100) \cdot \sin(391/500))/2 + 69/200, (3 \cdot \exp(-$
 $279/400) \cdot \sin(1581/2000))/2 + 279/800, (3 \cdot \exp(-141/200) \cdot \sin(799/1000))/2 + 141/400, (3 \cdot \exp(-$
 $57/80) \cdot \sin(323/400))/2 + 57/160, (3 \cdot \exp(-18/25) \cdot \sin(102/125))/2 + 9/25, (3 \cdot \exp(-$
 $291/400) \cdot \sin(1649/2000))/2 + 291/800, (3 \cdot \exp(-147/200) \cdot \sin(833/1000))/2 + 147/400, (3 \cdot \exp(-$
 $297/400) \cdot \sin(1683/2000))/2 + 297/800, (3 \cdot \exp(-3/4) \cdot \sin(17/20))/2 + 3/8, (3 \cdot \exp(-$
 $303/400) \cdot \sin(1717/2000))/2 + 303/800, (3 \cdot \exp(-153/200) \cdot \sin(867/1000))/2 + 153/400, (3 \cdot \exp(-$
 $309/400) \cdot \sin(1751/2000))/2 + 309/800, (3 \cdot \exp(-39/50) \cdot \sin(221/250))/2 + 39/100, (3 \cdot \exp(-$
 $63/80) \cdot \sin(357/400))/2 + 63/160, (3 \cdot \exp(-159/200) \cdot \sin(901/1000))/2 + 159/400, (3 \cdot \exp(-$
 $321/400) \cdot \sin(1819/2000))/2 + 321/800, (3 \cdot \exp(-81/100) \cdot \sin(459/500))/2 + 81/200, (3 \cdot \exp(-$
 $327/400) \cdot \sin(1853/2000))/2 + 327/800, (3 \cdot \exp(-33/40) \cdot \sin(187/200))/2 + 33/80, (3 \cdot \exp(-$
 $333/400) \cdot \sin(1887/2000))/2 + 333/800, (3 \cdot \exp(-21/25) \cdot \sin(119/125))/2 + 21/50, (3 \cdot \exp(-$
 $339/400) \cdot \sin(1921/2000))/2 + 339/800, (3 \cdot \exp(-171/200) \cdot \sin(969/1000))/2 + 171/400, (3 \cdot \exp(-$
 $69/80) \cdot \sin(391/400))/2 + 69/160, (3 \cdot \exp(-87/100) \cdot \sin(493/500))/2 + 87/200, (3 \cdot \exp(-$
 $351/400) \cdot \sin(1989/2000))/2 + 351/800, (3 \cdot \exp(-177/200) \cdot \sin(1003/1000))/2 + 177/400, (3 \cdot \exp(-$
 $357/400) \cdot \sin(2023/2000))/2 + 357/800, (3 \cdot \exp(-9/10) \cdot \sin(51/50))/2 + 9/20, (3 \cdot \exp(-$
 $363/400) \cdot \sin(2057/2000))/2 + 363/800, (3 \cdot \exp(-183/200) \cdot \sin(1037/1000))/2 + 183/400, (3 \cdot \exp(-$
 $369/400) \cdot \sin(2091/2000))/2 + 369/800, (3 \cdot \exp(-93/100) \cdot \sin(527/500))/2 + 93/200, (3 \cdot \exp(-$
 $15/16) \cdot \sin(17/16))/2 + 15/32, (3 \cdot \exp(-189/200) \cdot \sin(1071/1000))/2 + 189/400, (3 \cdot \exp(-$
 $381/400) \cdot \sin(2159/2000))/2 + 381/800, (3 \cdot \exp(-24/25) \cdot \sin(136/125))/2 + 12/25, (3 \cdot \exp(-$
 $387/400) \cdot \sin(2193/2000))/2 + 387/800, (3 \cdot \exp(-39/40) \cdot \sin(221/200))/2 + 39/80, (3 \cdot \exp(-$
 $393/400) \cdot \sin(2227/2000))/2 + 393/800, (3 \cdot \exp(-99/100) \cdot \sin(561/500))/2 + 99/200, (3 \cdot \exp(-$
 $399/400) \cdot \sin(2261/2000))/2 + 399/800, (3 \cdot \exp(-201/200) \cdot \sin(1139/1000))/2 + 201/400, (3 \cdot \exp(-$
 $81/80) \cdot \sin(459/400))/2 + 81/160, (3 \cdot \exp(-51/50) \cdot \sin(289/250))/2 + 51/100, (3 \cdot \exp(-$
 $411/400) \cdot \sin(2329/2000))/2 + 411/800, (3 \cdot \exp(-207/200) \cdot \sin(1173/1000))/2 + 207/400, (3 \cdot \exp(-$
 $417/400) \cdot \sin(2363/2000))/2 + 417/800, (3 \cdot \exp(-21/20) \cdot \sin(119/100))/2 + 21/40, (3 \cdot \exp(-$
 $423/400) \cdot \sin(2397/2000))/2 + 423/800, (3 \cdot \exp(-213/200) \cdot \sin(1207/1000))/2 + 213/400, (3 \cdot \exp(-$
 $429/400) \cdot \sin(2431/2000))/2 + 429/800, (3 \cdot \exp(-27/25) \cdot \sin(153/125))/2 + 27/50, (3 \cdot \exp(-$
 $87/80) \cdot \sin(493/400))/2 + 87/160, (3 \cdot \exp(-219/200) \cdot \sin(1241/1000))/2 + 219/400, (3 \cdot \exp(-$
 $441/400) \cdot \sin(2499/2000))/2 + 441/800, (3 \cdot \exp(-111/100) \cdot \sin(629/500))/2 + 111/200, (3 \cdot \exp(-$
 $447/400) \cdot \sin(2533/2000))/2 + 447/800, (3 \cdot \exp(-9/8) \cdot \sin(51/40))/2 + 9/16, (3 \cdot \exp(-$
 $453/400) \cdot \sin(2567/2000))/2 + 453/800, (3 \cdot \exp(-57/50) \cdot \sin(323/250))/2 + 57/100, (3 \cdot \exp(-$
 $459/400) \cdot \sin(2601/2000))/2 + 459/800, (3 \cdot \exp(-231/200) \cdot \sin(1309/1000))/2 + 231/400, (3 \cdot \exp(-$
 $93/80) \cdot \sin(527/400))/2 + 93/160, (3 \cdot \exp(-117/100) \cdot \sin(663/500))/2 + 117/200, (3 \cdot \exp(-$
 $471/400) \cdot \sin(2669/2000))/2 + 471/800, (3 \cdot \exp(-237/200) \cdot \sin(1343/1000))/2 + 237/400, (3 \cdot \exp(-$
 $477/400) \cdot \sin(2703/2000))/2 + 477/800, (3 \cdot \exp(-6/5) \cdot \sin(34/25))/2 + 3/5, (3 \cdot \exp(-$
 $483/400) \cdot \sin(2737/2000))/2 + 483/800, (3 \cdot \exp(-243/200) \cdot \sin(1377/1000))/2 + 243/400, (3 \cdot \exp(-$

$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 + 99/160, (3 * \exp(-249/200) * \sin(1411/1000)) / 2 + 249/400, (3 * \exp(-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(-$

$741/400) \cdot \sin(4199/2000))/2 + 741/800, (3 \cdot \exp(-93/50) \cdot \sin(527/250))/2 + 93/100, (3 \cdot \exp(-747/400) \cdot \sin(4233/2000))/2 + 747/800, (3 \cdot \exp(-15/8) \cdot \sin(17/8))/2 + 15/16]$

v =

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

vn =

[$33/20, (51 \cdot \cos(17/2000) \cdot \exp(-3/400))/40 - (9 \cdot \exp(-3/400) \cdot \sin(17/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/1000) \cdot \exp(-3/200))/40 - (9 \cdot \exp(-3/200) \cdot \sin(17/1000))/8 + 3/8, (51 \cdot \cos(51/2000) \cdot \exp(-9/400))/40 - (9 \cdot \exp(-9/400) \cdot \sin(51/2000))/8 + 3/8, (51 \cdot \cos(17/500) \cdot \exp(-3/100))/40 - (9 \cdot \exp(-3/100) \cdot \sin(17/500))/8 + 3/8, (51 \cdot \cos(17/400) \cdot \exp(-3/80))/40 - (9 \cdot \exp(-3/80) \cdot \sin(17/400))/8 + 3/8,$
 $(51 \cdot \cos(51/1000) \cdot \exp(-9/200))/40 - (9 \cdot \exp(-9/200) \cdot \sin(51/1000))/8 + 3/8, (51 \cdot \cos(119/2000) \cdot \exp(-21/400))/40 - (9 \cdot \exp(-21/400) \cdot \sin(119/2000))/8 + 3/8, (51 \cdot \cos(17/250) \cdot \exp(-3/50))/40 - (9 \cdot \exp(-3/50) \cdot \sin(17/250))/8 + 3/8, (51 \cdot \cos(153/2000) \cdot \exp(-27/400))/40 - (9 \cdot \exp(-27/400) \cdot \sin(153/2000))/8 + 3/8, (51 \cdot \cos(17/200) \cdot \exp(-3/40))/40 - (9 \cdot \exp(-3/40) \cdot \sin(17/200))/8 + 3/8, (51 \cdot \cos(187/2000) \cdot \exp(-33/400))/40 - (9 \cdot \exp(-33/400) \cdot \sin(187/2000))/8 + 3/8, (51 \cdot \cos(51/500) \cdot \exp(-9/100))/40 - (9 \cdot \exp(-9/100) \cdot \sin(51/500))/8 + 3/8, (51 \cdot \cos(221/2000) \cdot \exp(-39/400))/40 - (9 \cdot \exp(-39/400) \cdot \sin(221/2000))/8 + 3/8, (51 \cdot \cos(119/1000) \cdot \exp(-21/200))/40 - (9 \cdot \exp(-21/200) \cdot \sin(119/1000))/8 + 3/8,$
 $(51 \cdot \cos(51/400) \cdot \exp(-9/80))/40 - (9 \cdot \exp(-9/80) \cdot \sin(51/400))/8 + 3/8, (51 \cdot \cos(17/125) \cdot \exp(-3/25))/40 - (9 \cdot \exp(-3/25) \cdot \sin(17/125))/8 + 3/8, (51 \cdot \cos(289/2000) \cdot \exp(-51/400))/40 - (9 \cdot \exp(-51/400) \cdot \sin(289/2000))/8 + 3/8, (51 \cdot \cos(153/1000) \cdot \exp(-27/200))/40 - (9 \cdot \exp(-27/200) \cdot \sin(153/1000))/8 + 3/8, (51 \cdot \cos(323/2000) \cdot \exp(-57/400))/40 - (9 \cdot \exp(-57/400) \cdot \sin(323/2000))/8 + 3/8, (51 \cdot \cos(17/100) \cdot \exp(-3/20))/40 - (9 \cdot \exp(-3/20) \cdot \sin(17/100))/8 + 3/8,$
 $(51 \cdot \cos(357/2000) \cdot \exp(-63/400))/40 - (9 \cdot \exp(-63/400) \cdot \sin(357/2000))/8 + 3/8, (51 \cdot \cos(187/1000) \cdot \exp(-33/200))/40 - (9 \cdot \exp(-33/200) \cdot \sin(187/1000))/8 + 3/8,$
 $(51 \cdot \cos(391/2000) \cdot \exp(-69/400))/40 - (9 \cdot \exp(-69/400) \cdot \sin(391/2000))/8 + 3/8, (51 \cdot \cos(51/250) \cdot \exp(-9/50))/40 - (9 \cdot \exp(-9/50) \cdot \sin(51/250))/8 + 3/8, (51 \cdot \cos(17/80) \cdot \exp(-3/16))/40 - (9 \cdot \exp(-3/16) \cdot \sin(17/80))/8 + 3/8, (51 \cdot \cos(221/1000) \cdot \exp(-39/200))/40 - (9 \cdot \exp(-39/200) \cdot \sin(221/1000))/8 + 3/8, (51 \cdot \cos(459/2000) \cdot \exp(-81/400))/40 - (9 \cdot \exp(-81/400) \cdot \sin(459/2000))/8 + 3/8,$
 $(51 \cdot \cos(119/500) \cdot \exp(-21/100))/40 - (9 \cdot \exp(-21/100) \cdot \sin(119/500))/8 + 3/8, (51 \cdot \cos(493/2000) \cdot \exp(-87/400))/40 - (9 \cdot \exp(-87/400) \cdot \sin(493/2000))/8 + 3/8, (51 \cdot \cos(51/200) \cdot \exp(-9/40))/40 - (9 \cdot \exp(-$

$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,$

$(51 \cdot \cos(1343/2000) \cdot \exp(-237/400))/40 - (9 \cdot \exp(-237/400) \cdot \sin(1343/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/25) \cdot \exp(-3/5))/40 - (9 \cdot \exp(-3/5) \cdot \sin(17/25))/8 + 3/8, (51 \cdot \cos(1377/2000) \cdot \exp(-$
 $243/400))/40 - (9 \cdot \exp(-243/400) \cdot \sin(1377/2000))/8 + 3/8, (51 \cdot \cos(697/1000) \cdot \exp(-123/200))/40 -$
 $(9 \cdot \exp(-123/200) \cdot \sin(697/1000))/8 + 3/8, (51 \cdot \cos(1411/2000) \cdot \exp(-249/400))/40 - (9 \cdot \exp(-$
 $249/400) \cdot \sin(1411/2000))/8 + 3/8, (51 \cdot \cos(357/500) \cdot \exp(-63/100))/40 - (9 \cdot \exp(-$
 $63/100) \cdot \sin(357/500))/8 + 3/8, (51 \cdot \cos(289/400) \cdot \exp(-51/80))/40 - (9 \cdot \exp(-51/80) \cdot \sin(289/400))/8 +$
 $3/8, (51 \cdot \cos(731/1000) \cdot \exp(-129/200))/40 - (9 \cdot \exp(-129/200) \cdot \sin(731/1000))/8 + 3/8,$
 $(51 \cdot \cos(1479/2000) \cdot \exp(-261/400))/40 - (9 \cdot \exp(-261/400) \cdot \sin(1479/2000))/8 + 3/8,$
 $(51 \cdot \cos(187/250) \cdot \exp(-33/50))/40 - (9 \cdot \exp(-33/50) \cdot \sin(187/250))/8 + 3/8, (51 \cdot \cos(1513/2000) \cdot \exp(-$
 $267/400))/40 - (9 \cdot \exp(-267/400) \cdot \sin(1513/2000))/8 + 3/8, (51 \cdot \cos(153/200) \cdot \exp(-27/40))/40 - (9 \cdot \exp(-$
 $27/40) \cdot \sin(153/200))/8 + 3/8, (51 \cdot \cos(1547/2000) \cdot \exp(-273/400))/40 - (9 \cdot \exp(-$
 $273/400) \cdot \sin(1547/2000))/8 + 3/8, (51 \cdot \cos(391/500) \cdot \exp(-69/100))/40 - (9 \cdot \exp(-$
 $69/100) \cdot \sin(391/500))/8 + 3/8, (51 \cdot \cos(1581/2000) \cdot \exp(-279/400))/40 - (9 \cdot \exp(-$
 $279/400) \cdot \sin(1581/2000))/8 + 3/8, (51 \cdot \cos(799/1000) \cdot \exp(-141/200))/40 - (9 \cdot \exp(-$
 $141/200) \cdot \sin(799/1000))/8 + 3/8, (51 \cdot \cos(323/400) \cdot \exp(-57/80))/40 - (9 \cdot \exp(-57/80) \cdot \sin(323/400))/8$
 $+ 3/8, (51 \cdot \cos(102/125) \cdot \exp(-18/25))/40 - (9 \cdot \exp(-18/25) \cdot \sin(102/125))/8 + 3/8,$
 $(51 \cdot \cos(1649/2000) \cdot \exp(-291/400))/40 - (9 \cdot \exp(-291/400) \cdot \sin(1649/2000))/8 + 3/8,$
 $(51 \cdot \cos(833/1000) \cdot \exp(-147/200))/40 - (9 \cdot \exp(-147/200) \cdot \sin(833/1000))/8 + 3/8,$
 $(51 \cdot \cos(1683/2000) \cdot \exp(-297/400))/40 - (9 \cdot \exp(-297/400) \cdot \sin(1683/2000))/8 + 3/8,$
 $(51 \cdot \cos(17/20) \cdot \exp(-3/4))/40 - (9 \cdot \exp(-3/4) \cdot \sin(17/20))/8 + 3/8, (51 \cdot \cos(1717/2000) \cdot \exp(-$
 $303/400))/40 - (9 \cdot \exp(-303/400) \cdot \sin(1717/2000))/8 + 3/8, (51 \cdot \cos(867/1000) \cdot \exp(-153/200))/40 -$
 $(9 \cdot \exp(-153/200) \cdot \sin(867/1000))/8 + 3/8, (51 \cdot \cos(1751/2000) \cdot \exp(-309/400))/40 - (9 \cdot \exp(-$
 $309/400) \cdot \sin(1751/2000))/8 + 3/8, (51 \cdot \cos(221/250) \cdot \exp(-39/50))/40 - (9 \cdot \exp(-39/50) \cdot \sin(221/250))/8$
 $+ 3/8, (51 \cdot \cos(357/400) \cdot \exp(-63/80))/40 - (9 \cdot \exp(-63/80) \cdot \sin(357/400))/8 + 3/8,$
 $(51 \cdot \cos(901/1000) \cdot \exp(-159/200))/40 - (9 \cdot \exp(-159/200) \cdot \sin(901/1000))/8 + 3/8,$
 $(51 \cdot \cos(1819/2000) \cdot \exp(-321/400))/40 - (9 \cdot \exp(-321/400) \cdot \sin(1819/2000))/8 + 3/8,$
 $(51 \cdot \cos(459/500) \cdot \exp(-81/100))/40 - (9 \cdot \exp(-81/100) \cdot \sin(459/500))/8 + 3/8, (51 \cdot \cos(1853/2000) \cdot \exp(-$
 $327/400))/40 - (9 \cdot \exp(-327/400) \cdot \sin(1853/2000))/8 + 3/8, (51 \cdot \cos(187/200) \cdot \exp(-33/40))/40 - (9 \cdot \exp(-$
 $33/40) \cdot \sin(187/200))/8 + 3/8, (51 \cdot \cos(1887/2000) \cdot \exp(-333/400))/40 - (9 \cdot \exp(-$
 $333/400) \cdot \sin(1887/2000))/8 + 3/8, (51 \cdot \cos(119/125) \cdot \exp(-21/25))/40 - (9 \cdot \exp(-21/25) \cdot \sin(119/125))/8$
 $+ 3/8, (51 \cdot \cos(1921/2000) \cdot \exp(-339/400))/40 - (9 \cdot \exp(-339/400) \cdot \sin(1921/2000))/8 + 3/8,$
 $(51 \cdot \cos(969/1000) \cdot \exp(-171/200))/40 - (9 \cdot \exp(-171/200) \cdot \sin(969/1000))/8 + 3/8,$
 $(51 \cdot \cos(391/400) \cdot \exp(-69/80))/40 - (9 \cdot \exp(-69/80) \cdot \sin(391/400))/8 + 3/8, (51 \cdot \cos(493/500) \cdot \exp(-$
 $87/100))/40 - (9 \cdot \exp(-87/100) \cdot \sin(493/500))/8 + 3/8, (51 \cdot \cos(1989/2000) \cdot \exp(-351/400))/40 - (9 \cdot \exp(-$
 $351/400) \cdot \sin(1989/2000))/8 + 3/8, (51 \cdot \cos(1003/1000) \cdot \exp(-177/200))/40 - (9 \cdot \exp(-$
 $177/200) \cdot \sin(1003/1000))/8 + 3/8, (51 \cdot \cos(2023/2000) \cdot \exp(-357/400))/40 - (9 \cdot \exp(-$
 $357/400) \cdot \sin(2023/2000))/8 + 3/8, (51 \cdot \cos(51/50) \cdot \exp(-9/10))/40 - (9 \cdot \exp(-9/10) \cdot \sin(51/50))/8 + 3/8,$
 $(51 \cdot \cos(2057/2000) \cdot \exp(-363/400))/40 - (9 \cdot \exp(-363/400) \cdot \sin(2057/2000))/8 + 3/8,$
 $(51 \cdot \cos(1037/1000) \cdot \exp(-183/200))/40 - (9 \cdot \exp(-183/200) \cdot \sin(1037/1000))/8 + 3/8,$
 $(51 \cdot \cos(2091/2000) \cdot \exp(-369/400))/40 - (9 \cdot \exp(-369/400) \cdot \sin(2091/2000))/8 + 3/8,$
 $(51 \cdot \cos(527/500) \cdot \exp(-93/100))/40 - (9 \cdot \exp(-93/100) \cdot \sin(527/500))/8 + 3/8, (51 \cdot \cos(17/16) \cdot \exp(-$
 $15/16))/40 - (9 \cdot \exp(-15/16) \cdot \sin(17/16))/8 + 3/8, (51 \cdot \cos(1071/1000) \cdot \exp(-189/200))/40 - (9 \cdot \exp(-$

$189/200*\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*\cos(1479/1000)*\exp(-261/200))/40 - (9*\exp(-261/200)*\sin(1479/1000))/8 + 3/8, (51*\cos(119/80)*\exp(-21/16))/40 - (9*\exp(-21/16)*\sin(119/80))/8 + 3/8, (51*\cos(187/125)*\exp(-33/25))/40 - (9*\exp(-33/25)*\sin(187/125))/8 + 3/8, (51*\cos(3009/2000)*\exp(-531/400))/40 - (9*\exp(-531/400)*\sin(3009/2000))/8 + 3/8, (51*\cos(1513/1000)*\exp(-267/200))/40 - (9*\exp(-267/200)*\sin(1513/1000))/8 + 3/8, (51*\cos(3043/2000)*\exp(-537/400))/40 - (9*\exp(-537/400)*\sin(3043/2000))/8 + 3/8, (51*\cos(153/100)*\exp(-27/20))/40 - (9*\exp(-27/20)*\sin(153/100))/8 + 3/8, (51*\cos(3077/2000)*\exp(-543/400))/40 - (9*\exp(-543/400)*\sin(3077/2000))/8 + 3/8, (51*\cos(1547/1000)*\exp(-273/200))/40 - (9*\exp(-273/200)*\sin(1547/1000))/8 + 3/8, (51*\cos(3111/2000)*\exp(-549/400))/40 - (9*\exp(-549/400)*\sin(3111/2000))/8 + 3/8, (51*\cos(391/250)*\exp(-69/50))/40 - (9*\exp(-69/50)*\sin(391/250))/8 + 3/8, (51*\cos(629/400)*\exp(-111/80))/40 - (9*\exp(-111/80)*\sin(629/400))/8 + 3/8, (51*\cos(1581/1000)*\exp(-279/200))/40 - (9*\exp(-279/200)*\sin(1581/1000))/8 + 3/8, (51*\cos(3179/2000)*\exp(-561/400))/40 - (9*\exp(-561/400)*\sin(3179/2000))/8 + 3/8, (51*\cos(799/500)*\exp(-141/100))/40 - (9*\exp(-141/100)*\sin(799/500))/8 + 3/8, (51*\cos(3213/2000)*\exp(-567/400))/40 - (9*\exp(-567/400)*\sin(3213/2000))/8 + 3/8, (51*\cos(323/200)*\exp(-57/40))/40 - (9*\exp(-57/40)*\sin(323/200))/8 + 3/8, (51*\cos(3247/2000)*\exp(-573/400))/40 - (9*\exp(-573/400)*\sin(3247/2000))/8 + 3/8, (51*\cos(204/125)*\exp(-36/25))/40 - (9*\exp(-36/25)*\sin(204/125))/8 + 3/8, (51*\cos(3281/2000)*\exp(-579/400))/40 - (9*\exp(-579/400)*\sin(3281/2000))/8 + 3/8, (51*\cos(1649/1000)*\exp(-291/200))/40 - (9*\exp(-291/200)*\sin(1649/1000))/8 + 3/8, (51*\cos(663/400)*\exp(-117/80))/40 - (9*\exp(-117/80)*\sin(663/400))/8 + 3/8, (51*\cos(833/500)*\exp(-147/100))/40 - (9*\exp(-147/100)*\sin(833/500))/8 + 3/8, (51*\cos(3349/2000)*\exp(-591/400))/40 - (9*\exp(-591/400)*\sin(3349/2000))/8 + 3/8, (51*\cos(1683/1000)*\exp(-297/200))/40 - (9*\exp(-297/200)*\sin(1683/1000))/8 + 3/8, (51*\cos(3383/2000)*\exp(-597/400))/40 - (9*\exp(-597/400)*\sin(3383/2000))/8 + 3/8, (51*\cos(17/10)*\exp(-3/2))/40 - (9*\exp(-3/2)*\sin(17/10))/8 + 3/8, (51*\cos(3417/2000)*\exp(-603/400))/40 - (9*\exp(-603/400)*\sin(3417/2000))/8 + 3/8, (51*\cos(1717/1000)*\exp(-303/200))/40 - (9*\exp(-303/200)*\sin(1717/1000))/8 + 3/8, (51*\cos(3451/2000)*\exp(-609/400))/40 - (9*\exp(-609/400)*\sin(3451/2000))/8 + 3/8, (51*\cos(867/500)*\exp(-153/100))/40 - (9*\exp(-153/100)*\sin(867/500))/8 + 3/8, (51*\cos(697/400)*\exp(-123/80))/40 - (9*\exp(-123/80)*\sin(697/400))/8 + 3/8, (51*\cos(1751/1000)*\exp(-309/200))/40 - (9*\exp(-309/200)*\sin(1751/1000))/8 + 3/8, (51*\cos(3519/2000)*\exp(-621/400))/40 - (9*\exp(-621/400)*\sin(3519/2000))/8 + 3/8, (51*\cos(221/125)*\exp(-39/25))/40 - (9*\exp(-39/25)*\sin(221/125))/8 + 3/8, (51*\cos(3553/2000)*\exp(-627/400))/40 - (9*\exp(-627/400)*\sin(3553/2000))/8 + 3/8, (51*\cos(357/200)*\exp(-63/40))/40 - (9*\exp(-63/40)*\sin(357/200))/8 + 3/8, (51*\cos(3587/2000)*\exp(-633/400))/40 - (9*\exp(-633/400)*\sin(3587/2000))/8 + 3/8, (51*\cos(901/500)*\exp(-159/100))/40 - (9*\exp(-159/100)*\sin(901/500))/8 + 3/8, (51*\cos(3621/2000)*\exp(-639/400))/40 - (9*\exp(-639/400)*\sin(3621/2000))/8 + 3/8, (51*\cos(1819/1000)*\exp(-321/200))/40 - (9*\exp(-321/200)*\sin(1819/1000))/8 + 3/8, (51*\cos(731/400)*\exp(-129/80))/40 - (9*\exp(-129/80)*\sin(731/400))/8 + 3/8, (51*\cos(459/250)*\exp(-81/50))/40 - (9*\exp(-81/50)*\sin(459/250))/8 + 3/8, (51*\cos(3689/2000)*\exp(-651/400))/40 - (9*\exp(-651/400)*\sin(3689/2000))/8 + 3/8, (51*\cos(1853/1000)*\exp(-327/200))/40 - (9*\exp(-327/200)*\sin(1853/1000))/8 + 3/8, (51*\cos(3723/2000)*\exp(-657/400))/40 - (9*\exp(-657/400)*\sin(3723/2000))/8 + 3/8,$

$(51 \cdot \cos(187/100) \cdot \exp(-33/20))/40 - (9 \cdot \exp(-33/20) \cdot \sin(187/100))/8 + 3/8, (51 \cdot \cos(3757/2000) \cdot \exp(-663/400))/40 - (9 \cdot \exp(-663/400) \cdot \sin(3757/2000))/8 + 3/8, (51 \cdot \cos(1887/1000) \cdot \exp(-333/200))/40 - (9 \cdot \exp(-333/200) \cdot \sin(1887/1000))/8 + 3/8, (51 \cdot \cos(3791/2000) \cdot \exp(-669/400))/40 - (9 \cdot \exp(-669/400) \cdot \sin(3791/2000))/8 + 3/8, (51 \cdot \cos(238/125) \cdot \exp(-42/25))/40 - (9 \cdot \exp(-42/25) \cdot \sin(238/125))/8 + 3/8, (51 \cdot \cos(153/80) \cdot \exp(-27/16))/40 - (9 \cdot \exp(-27/16) \cdot \sin(153/80))/8 + 3/8,$
 $(51 \cdot \cos(1921/1000) \cdot \exp(-339/200))/40 - (9 \cdot \exp(-339/200) \cdot \sin(1921/1000))/8 + 3/8,$
 $(51 \cdot \cos(3859/2000) \cdot \exp(-681/400))/40 - (9 \cdot \exp(-681/400) \cdot \sin(3859/2000))/8 + 3/8,$
 $(51 \cdot \cos(969/500) \cdot \exp(-171/100))/40 - (9 \cdot \exp(-171/100) \cdot \sin(969/500))/8 + 3/8,$
 $(51 \cdot \cos(3893/2000) \cdot \exp(-687/400))/40 - (9 \cdot \exp(-687/400) \cdot \sin(3893/2000))/8 + 3/8,$
 $(51 \cdot \cos(391/200) \cdot \exp(-69/40))/40 - (9 \cdot \exp(-69/40) \cdot \sin(391/200))/8 + 3/8, (51 \cdot \cos(3927/2000) \cdot \exp(-693/400))/40 - (9 \cdot \exp(-693/400) \cdot \sin(3927/2000))/8 + 3/8, (51 \cdot \cos(493/250) \cdot \exp(-87/50))/40 - (9 \cdot \exp(-87/50) \cdot \sin(493/250))/8 + 3/8, (51 \cdot \cos(3961/2000) \cdot \exp(-699/400))/40 - (9 \cdot \exp(-699/400) \cdot \sin(3961/2000))/8 + 3/8, (51 \cdot \cos(1989/1000) \cdot \exp(-351/200))/40 - (9 \cdot \exp(-351/200) \cdot \sin(1989/1000))/8 + 3/8, (51 \cdot \cos(799/400) \cdot \exp(-141/80))/40 - (9 \cdot \exp(-141/80) \cdot \sin(799/400))/8 + 3/8, (51 \cdot \cos(1003/500) \cdot \exp(-177/100))/40 - (9 \cdot \exp(-177/100) \cdot \sin(1003/500))/8 + 3/8, (51 \cdot \cos(4029/2000) \cdot \exp(-711/400))/40 - (9 \cdot \exp(-711/400) \cdot \sin(4029/2000))/8 + 3/8, (51 \cdot \cos(2023/1000) \cdot \exp(-357/200))/40 - (9 \cdot \exp(-357/200) \cdot \sin(2023/1000))/8 + 3/8, (51 \cdot \cos(4063/2000) \cdot \exp(-717/400))/40 - (9 \cdot \exp(-717/400) \cdot \sin(4063/2000))/8 + 3/8, (51 \cdot \cos(51/25) \cdot \exp(-9/5))/40 - (9 \cdot \exp(-9/5) \cdot \sin(51/25))/8 + 3/8,$
 $(51 \cdot \cos(4097/2000) \cdot \exp(-723/400))/40 - (9 \cdot \exp(-723/400) \cdot \sin(4097/2000))/8 + 3/8,$
 $(51 \cdot \cos(2057/1000) \cdot \exp(-363/200))/40 - (9 \cdot \exp(-363/200) \cdot \sin(2057/1000))/8 + 3/8,$
 $(51 \cdot \cos(4131/2000) \cdot \exp(-729/400))/40 - (9 \cdot \exp(-729/400) \cdot \sin(4131/2000))/8 + 3/8,$
 $(51 \cdot \cos(1037/500) \cdot \exp(-183/100))/40 - (9 \cdot \exp(-183/100) \cdot \sin(1037/500))/8 + 3/8,$
 $(51 \cdot \cos(833/400) \cdot \exp(-147/80))/40 - (9 \cdot \exp(-147/80) \cdot \sin(833/400))/8 + 3/8, (51 \cdot \cos(2091/1000) \cdot \exp(-369/200))/40 - (9 \cdot \exp(-369/200) \cdot \sin(2091/1000))/8 + 3/8, (51 \cdot \cos(4199/2000) \cdot \exp(-741/400))/40 - (9 \cdot \exp(-741/400) \cdot \sin(4199/2000))/8 + 3/8, (51 \cdot \cos(527/250) \cdot \exp(-93/50))/40 - (9 \cdot \exp(-93/50) \cdot \sin(527/250))/8 + 3/8, (51 \cdot \cos(4233/2000) \cdot \exp(-747/400))/40 - (9 \cdot \exp(-747/400) \cdot \sin(4233/2000))/8 + 3/8, (51 \cdot \cos(17/8) \cdot \exp(-15/8))/40 - (9 \cdot \exp(-15/8) \cdot \sin(17/8))/8 + 3/8]$

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, - (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 - (6*\exp(-123/200)*\sin(697/1000))/25, - (153*\cos(1411/2000)*\exp(-249/400))/80 - (6*\exp(-249/400)*\sin(1411/2000))/25, - (153*\cos(357/500)*\exp(-63/100))/80 - (6*\exp(-63/100)*\sin(357/500))/25, - (153*\cos(289/400)*\exp(-51/80))/80 - (6*\exp(-51/80)*\sin(289/400))/25, - (153*\cos(731/1000)*\exp(-129/200))/80 - (6*\exp(-129/200)*\sin(731/1000))/25, - (153*\cos(1479/2000)*\exp(-261/400))/80 - (6*\exp(-261/400)*\sin(1479/2000))/25, - (153*\cos(187/250)*\exp(-33/50))/80 - (6*\exp(-33/50)*\sin(187/250))/25, - (153*\cos(1513/2000)*\exp(-267/400))/80 - (6*\exp(-267/400)*\sin(1513/2000))/25, - (153*\cos(153/200)*\exp(-27/40))/80 - (6*\exp(-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(-69/100)*\sin(391/500))/25, - (153*\cos(1581/2000)*\exp(-279/400))/80 - (6*\exp(-279/400)*\sin(1581/2000))/25, - (153*\cos(799/1000)*\exp(-141/200))/80 - (6*\exp(-141/200)*\sin(799/1000))/25, - (153*\cos(323/400)*\exp(-57/80))/80 - (6*\exp(-57/80)*\sin(323/400))/25, - (153*\cos(102/125)*\exp(-18/25))/80 - (6*\exp(-18/25)*\sin(102/125))/25, - (153*\cos(1649/2000)*\exp(-291/400))/80 - (6*\exp(-291/400)*\sin(1649/2000))/25, - (153*\cos(833/1000)*\exp(-147/200))/80 -$

$(6 \cdot \exp(-147/200) \cdot \sin(833/1000))/25, - (153 \cdot \cos(1683/2000) \cdot \exp(-297/400))/80 - (6 \cdot \exp(-297/400) \cdot \sin(1683/2000))/25, - (153 \cdot \cos(17/20) \cdot \exp(-3/4))/80 - (6 \cdot \exp(-3/4) \cdot \sin(17/20))/25, - (153 \cdot \cos(1717/2000) \cdot \exp(-303/400))/80 - (6 \cdot \exp(-303/400) \cdot \sin(1717/2000))/25, - (153 \cdot \cos(867/1000) \cdot \exp(-153/200))/80 - (6 \cdot \exp(-153/200) \cdot \sin(867/1000))/25, - (153 \cdot \cos(1751/2000) \cdot \exp(-309/400))/80 - (6 \cdot \exp(-309/400) \cdot \sin(1751/2000))/25, - (153 \cdot \cos(221/250) \cdot \exp(-39/50))/80 - (6 \cdot \exp(-39/50) \cdot \sin(221/250))/25, - (153 \cdot \cos(357/400) \cdot \exp(-63/80))/80 - (6 \cdot \exp(-63/80) \cdot \sin(357/400))/25, - (153 \cdot \cos(901/1000) \cdot \exp(-159/200))/80 - (6 \cdot \exp(-159/200) \cdot \sin(901/1000))/25, - (153 \cdot \cos(1819/2000) \cdot \exp(-321/400))/80 - (6 \cdot \exp(-321/400) \cdot \sin(1819/2000))/25, - (153 \cdot \cos(459/500) \cdot \exp(-81/100))/80 - 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(6 \cdot \exp(-177/200) \cdot \sin(1003/1000))/25, - (153 \cdot \cos(2023/2000) \cdot \exp(-357/400))/80 - (6 \cdot \exp(-357/400) \cdot \sin(2023/2000))/25, - (153 \cdot \cos(51/50) \cdot \exp(-9/10))/80 - (6 \cdot \exp(-9/10) \cdot \sin(51/50))/25, - (153 \cdot \cos(2057/2000) \cdot \exp(-363/400))/80 - (6 \cdot \exp(-363/400) \cdot \sin(2057/2000))/25, - (153 \cdot \cos(1037/1000) \cdot \exp(-183/200))/80 - (6 \cdot \exp(-183/200) \cdot \sin(1037/1000))/25, - (153 \cdot \cos(2091/2000) \cdot \exp(-369/400))/80 - (6 \cdot \exp(-369/400) \cdot \sin(2091/2000))/25, - (153 \cdot \cos(527/500) \cdot \exp(-93/100))/80 - (6 \cdot \exp(-93/100) \cdot \sin(527/500))/25, - (153 \cdot \cos(17/16) \cdot \exp(-15/16))/80 - (6 \cdot \exp(-15/16) \cdot \sin(17/16))/25, - (153 \cdot \cos(1071/1000) \cdot \exp(-189/200))/80 - (6 \cdot \exp(-189/200) \cdot \sin(1071/1000))/25, - (153 \cdot \cos(2159/2000) \cdot \exp(-381/400))/80 - (6 \cdot \exp(-381/400) \cdot \sin(2159/2000))/25, - (153 \cdot \cos(136/125) \cdot \exp(-24/25))/80 - 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$219/200*\sin(1241/1000))/25, - (153*\cos(2499/2000)*\exp(-441/400))/80 - (6*\exp(-441/400)*\sin(2499/2000))/25, - (153*\cos(629/500)*\exp(-111/100))/80 - (6*\exp(-111/100)*\sin(629/500))/25, - (153*\cos(2533/2000)*\exp(-447/400))/80 - (6*\exp(-447/400)*\sin(2533/2000))/25, - (153*\cos(51/40)*\exp(-9/8))/80 - (6*\exp(-9/8)*\sin(51/40))/25, - (153*\cos(2567/2000)*\exp(-453/400))/80 - (6*\exp(-453/400)*\sin(2567/2000))/25, - (153*\cos(323/250)*\exp(-57/50))/80 - (6*\exp(-57/50)*\sin(323/250))/25, - (153*\cos(2601/2000)*\exp(-459/400))/80 - (6*\exp(-459/400)*\sin(2601/2000))/25, - (153*\cos(1309/1000)*\exp(-231/200))/80 - (6*\exp(-231/200)*\sin(1309/1000))/25, - (153*\cos(527/400)*\exp(-93/80))/80 - (6*\exp(-93/80)*\sin(527/400))/25, - (153*\cos(663/500)*\exp(-117/100))/80 - (6*\exp(-117/100)*\sin(663/500))/25, - (153*\cos(2669/2000)*\exp(-471/400))/80 - (6*\exp(-471/400)*\sin(2669/2000))/25, - (153*\cos(1343/1000)*\exp(-237/200))/80 - (6*\exp(-237/200)*\sin(1343/1000))/25, - (153*\cos(2703/2000)*\exp(-477/400))/80 - (6*\exp(-477/400)*\sin(2703/2000))/25, - (153*\cos(34/25)*\exp(-6/5))/80 - (6*\exp(-6/5)*\sin(34/25))/25, - (153*\cos(2737/2000)*\exp(-483/400))/80 - (6*\exp(-483/400)*\sin(2737/2000))/25, - (153*\cos(1377/1000)*\exp(-243/200))/80 - (6*\exp(-243/200)*\sin(1377/1000))/25, - (153*\cos(2771/2000)*\exp(-489/400))/80 - (6*\exp(-489/400)*\sin(2771/2000))/25, - (153*\cos(697/500)*\exp(-123/100))/80 - (6*\exp(-123/100)*\sin(697/500))/25, - (153*\cos(561/400)*\exp(-99/80))/80 - (6*\exp(-99/80)*\sin(561/400))/25, - (153*\cos(1411/1000)*\exp(-249/200))/80 - (6*\exp(-249/200)*\sin(1411/1000))/25, - (153*\cos(2839/2000)*\exp(-501/400))/80 - (6*\exp(-501/400)*\sin(2839/2000))/25, - (153*\cos(357/250)*\exp(-63/50))/80 - (6*\exp(-63/50)*\sin(357/250))/25, - (153*\cos(2873/2000)*\exp(-507/400))/80 - (6*\exp(-507/400)*\sin(2873/2000))/25, - (153*\cos(289/200)*\exp(-51/40))/80 - (6*\exp(-51/40)*\sin(289/200))/25, - (153*\cos(2907/2000)*\exp(-513/400))/80 - (6*\exp(-513/400)*\sin(2907/2000))/25, - (153*\cos(731/500)*\exp(-129/100))/80 - (6*\exp(-129/100)*\sin(731/500))/25, - (153*\cos(2941/2000)*\exp(-519/400))/80 - (6*\exp(-519/400)*\sin(2941/2000))/25, - (153*\cos(1479/1000)*\exp(-261/200))/80 - (6*\exp(-261/200)*\sin(1479/1000))/25, - (153*\cos(119/80)*\exp(-21/16))/80 - (6*\exp(-21/16)*\sin(119/80))/25, - (153*\cos(187/125)*\exp(-33/25))/80 - (6*\exp(-33/25)*\sin(187/125))/25, - (153*\cos(3009/2000)*\exp(-531/400))/80 - (6*\exp(-531/400)*\sin(3009/2000))/25, - (153*\cos(1513/1000)*\exp(-267/200))/80 - (6*\exp(-267/200)*\sin(1513/1000))/25, - (153*\cos(3043/2000)*\exp(-537/400))/80 - (6*\exp(-537/400)*\sin(3043/2000))/25, - (153*\cos(153/100)*\exp(-27/20))/80 - (6*\exp(-27/20)*\sin(153/100))/25, - (153*\cos(3077/2000)*\exp(-543/400))/80 - (6*\exp(-543/400)*\sin(3077/2000))/25, - (153*\cos(1547/1000)*\exp(-273/200))/80 - (6*\exp(-273/200)*\sin(1547/1000))/25, - (153*\cos(3111/2000)*\exp(-549/400))/80 - (6*\exp(-549/400)*\sin(3111/2000))/25, - (153*\cos(391/250)*\exp(-69/50))/80 - (6*\exp(-69/50)*\sin(391/250))/25, - (153*\cos(629/400)*\exp(-111/80))/80 - (6*\exp(-111/80)*\sin(629/400))/25, - (153*\cos(1581/1000)*\exp(-279/200))/80 - (6*\exp(-279/200)*\sin(1581/1000))/25, - (153*\cos(3179/2000)*\exp(-561/400))/80 - (6*\exp(-561/400)*\sin(3179/2000))/25, - (153*\cos(799/500)*\exp(-141/100))/80 - (6*\exp(-141/100)*\sin(799/500))/25, - (153*\cos(3213/2000)*\exp(-567/400))/80 - (6*\exp(-567/400)*\sin(3213/2000))/25, - (153*\cos(323/200)*\exp(-57/40))/80 - (6*\exp(-57/40)*\sin(323/200))/25, - (153*\cos(3247/2000)*\exp(-573/400))/80 - (6*\exp(-573/400)*\sin(3247/2000))/25, - (153*\cos(204/125)*\exp(-36/25))/80 - (6*\exp(-36/25)*\sin(204/125))/25, - (153*\cos(3281/2000)*\exp(-579/400))/80 - (6*\exp(-579/400)*\sin(3281/2000))/25, - (153*\cos(1649/1000)*\exp(-291/200))/80 -$

$(6*\exp(-291/200)*\sin(1649/1000))/25, - (153*\cos(663/400)*\exp(-117/80))/80 - (6*\exp(-117/80)*\sin(663/400))/25, - (153*\cos(833/500)*\exp(-147/100))/80 - (6*\exp(-147/100)*\sin(833/500))/25, - (153*\cos(3349/2000)*\exp(-591/400))/80 - (6*\exp(-591/400)*\sin(3349/2000))/25, - (153*\cos(1683/1000)*\exp(-297/200))/80 - (6*\exp(-297/200)*\sin(1683/1000))/25, - (153*\cos(3383/2000)*\exp(-597/400))/80 - (6*\exp(-597/400)*\sin(3383/2000))/25, - (153*\cos(17/10)*\exp(-3/2))/80 - (6*\exp(-3/2)*\sin(17/10))/25, - (153*\cos(3417/2000)*\exp(-603/400))/80 - (6*\exp(-603/400)*\sin(3417/2000))/25, - (153*\cos(1717/1000)*\exp(-303/200))/80 - (6*\exp(-303/200)*\sin(1717/1000))/25, - (153*\cos(3451/2000)*\exp(-609/400))/80 - (6*\exp(-609/400)*\sin(3451/2000))/25, - (153*\cos(867/500)*\exp(-153/100))/80 - (6*\exp(-153/100)*\sin(867/500))/25, - (153*\cos(697/400)*\exp(-123/80))/80 - (6*\exp(-123/80)*\sin(697/400))/25, - (153*\cos(1751/1000)*\exp(-309/200))/80 - (6*\exp(-309/200)*\sin(1751/1000))/25, - (153*\cos(3519/2000)*\exp(-621/400))/80 - (6*\exp(-621/400)*\sin(3519/2000))/25, - (153*\cos(221/125)*\exp(-39/25))/80 - (6*\exp(-39/25)*\sin(221/125))/25, - (153*\cos(3553/2000)*\exp(-627/400))/80 - (6*\exp(-627/400)*\sin(3553/2000))/25, - (153*\cos(357/200)*\exp(-63/40))/80 - (6*\exp(-63/40)*\sin(357/200))/25, - (153*\cos(3587/2000)*\exp(-633/400))/80 - (6*\exp(-633/400)*\sin(3587/2000))/25, - (153*\cos(901/500)*\exp(-159/100))/80 - (6*\exp(-159/100)*\sin(901/500))/25, - (153*\cos(3621/2000)*\exp(-639/400))/80 - (6*\exp(-639/400)*\sin(3621/2000))/25, - (153*\cos(1819/1000)*\exp(-321/200))/80 - (6*\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, -$

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(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]
```

```
ans =
```

```
'location'
```

```
ans =
```

```
'best'
```

```
(c) commandwindow
clear
clc
syms x
y=5*sin(5*x)^5
v=pi*y^2
vint=int(v)
vint=int(v,0,pi)
vintd=double(vint)
```

```
y =
```

```
5*sin(5*x)^5
```

```
v =
```

```
25*pi*sin(5*x)^10
```

```
vint =
```

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

vint =

$$(1575*\pi^2)/256$$

vintd =

$$60.7211989520146$$

