

MATLAB CODES USED

Commandwindow

```
clear
```

```
clc
```

```
close all
```

```
v=[0 10 4 -2; -3 -17 1 2 ;1 1 1 0;8 -34 16 -10]
```

```
m=[-4;2;6;4]
```

```
y=v^-1*m
```

```
syms t
```

```
d=1.5*exp(-0.75*t)*sin(0.85*t)+0.375*t
```

```
tn=[0:0.01:2.5]
```

```
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')
```

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

```
grid on
```

```
grid minor
```

```
axis tight
```

```
syms x
```

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

```
volume=22/7*int(y^2,0,22/7)
```

volume= double(volume)

v =

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

m =

```
-4
2
6
4
```

y =

```
4.0000
-0.0000
2.0000
6.0000
```

d =

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

tn =

Columns 1 through 12

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

Columns 13 through 24

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

Columns 25 through 36

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

Columns 37 through 48

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

Columns 49 through 60

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

Columns 61 through 72

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

Columns 73 through 84

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

Columns 85 through 96

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

Columns 97 through 108

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

Columns 109 through 120

1.0800 1.0900 1.1000 1.1100 1.1200 1.1300 1.1400 1.1500 1.1600 1.1700

1.1800 1.1900

Columns 121 through 132

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

Columns 133 through 144

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

Columns 145 through 156

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

Columns 157 through 168

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

Columns 169 through 180

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

Columns 181 through 192

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

Columns 193 through 204

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

Columns 205 through 216

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

Columns 217 through 228

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

Columns 229 through 240

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

Columns 241 through 251

2.4000 2.4100 2.4200 2.4300 2.4400 2.4500 2.4600 2.4700 2.4800 2.4900
2.5000

v =

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

vn =

$$\begin{aligned} & [33/20, (51*\cos(17/2000)*\exp(-3/400))/40 - (9*\exp(-3/400)*\sin(17/2000))/8 + 3/8, \\ & (51*\cos(17/1000)*\exp(-3/200))/40 - (9*\exp(-3/200)*\sin(17/1000))/8 + 3/8, \\ & (51*\cos(51/2000)*\exp(-9/400))/40 - (9*\exp(-9/400)*\sin(51/2000))/8 + 3/8, \\ & (51*\cos(17/500)*\exp(-3/100))/40 - (9*\exp(-3/100)*\sin(17/500))/8 + 3/8, (51*\cos(17/400)*\exp(- \\ & 3/80))/40 - (9*\exp(-3/80)*\sin(17/400))/8 + 3/8, (51*\cos(51/1000)*\exp(-9/200))/40 - (9*\exp(- \\ & 9/200)*\sin(51/1000))/8 + 3/8, (51*\cos(119/2000)*\exp(-21/400))/40 - (9*\exp(- \\ & 21/400)*\sin(119/2000))/8 + 3/8, (51*\cos(17/250)*\exp(-3/50))/40 - (9*\exp(- \\ & 3/50)*\sin(17/250))/8 + 3/8, (51*\cos(153/2000)*\exp(-27/400))/40 - (9*\exp(- \\ & 27/400)*\sin(153/2000))/8 + 3/8, (51*\cos(17/200)*\exp(-3/40))/40 - (9*\exp(- \\ & 3/40)*\sin(17/200))/8 + 3/8, (51*\cos(187/2000)*\exp(-33/400))/40 - (9*\exp(- \\ & 33/400)*\sin(187/2000))/8 + 3/8, (51*\cos(51/500)*\exp(-9/100))/40 - (9*\exp(- \\ & 9/100)*\sin(51/500))/8 + 3/8, (51*\cos(221/2000)*\exp(-39/400))/40 - (9*\exp(- \\ & 39/400)*\sin(221/2000))/8 + 3/8, (51*\cos(119/1000)*\exp(-21/200))/40 - (9*\exp(- \\ & 21/200)*\sin(119/1000))/8 + 3/8, (51*\cos(51/400)*\exp(-9/80))/40 - (9*\exp(- \\ & 9/80)*\sin(51/400))/8 + 3/8, (51*\cos(17/125)*\exp(-3/25))/40 - (9*\exp(-3/25)*\sin(17/125))/8 + \\ & 3/8, (51*\cos(289/2000)*\exp(-51/400))/40 - (9*\exp(-51/400)*\sin(289/2000))/8 + 3/8, \\ & (51*\cos(153/1000)*\exp(-27/200))/40 - (9*\exp(-27/200)*\sin(153/1000))/8 + 3/8, \\ & (51*\cos(323/2000)*\exp(-57/400))/40 - (9*\exp(-57/400)*\sin(323/2000))/8 + 3/8, \\ & (51*\cos(17/100)*\exp(-3/20))/40 - (9*\exp(-3/20)*\sin(17/100))/8 + 3/8, (51*\cos(357/2000)*\exp(- \\ & 63/400))/40 - (9*\exp(-63/400)*\sin(357/2000))/8 + 3/8, (51*\cos(187/1000)*\exp(-33/200))/40 - \\ & (9*\exp(-33/200)*\sin(187/1000))/8 + 3/8, (51*\cos(391/2000)*\exp(-69/400))/40 - (9*\exp(- \\ & 69/400)*\sin(391/2000))/8 + 3/8, (51*\cos(51/250)*\exp(-9/50))/40 - (9*\exp(- \\ & 9/50)*\sin(51/250))/8 + 3/8, (51*\cos(17/80)*\exp(-3/16))/40 - (9*\exp(-3/16)*\sin(17/80))/8 + 3/8, \\ & (51*\cos(221/1000)*\exp(-39/200))/40 - (9*\exp(-39/200)*\sin(221/1000))/8 + 3/8, \\ & (51*\cos(459/2000)*\exp(-81/400))/40 - (9*\exp(-81/400)*\sin(459/2000))/8 + 3/8, \\ & (51*\cos(119/500)*\exp(-21/100))/40 - (9*\exp(-21/100)*\sin(119/500))/8 + 3/8, \\ & (51*\cos(493/2000)*\exp(-87/400))/40 - (9*\exp(-87/400)*\sin(493/2000))/8 + 3/8, \\ & (51*\cos(51/200)*\exp(-9/40))/40 - (9*\exp(-9/40)*\sin(51/200))/8 + 3/8, (51*\cos(527/2000)*\exp(- \end{aligned}$$

$93/400)/40 - (9*\exp(-93/400)*\sin(527/2000))/8 + 3/8, (51*\cos(34/125)*\exp(-6/25))/40 -$
 $(9*\exp(-6/25)*\sin(34/125))/8 + 3/8, (51*\cos(561/2000)*\exp(-99/400))/40 - (9*\exp(-$
 $99/400)*\sin(561/2000))/8 + 3/8, (51*\cos(289/1000)*\exp(-51/200))/40 - (9*\exp(-$
 $51/200)*\sin(289/1000))/8 + 3/8, (51*\cos(119/400)*\exp(-21/80))/40 - (9*\exp(-$
 $21/80)*\sin(119/400))/8 + 3/8, (51*\cos(153/500)*\exp(-27/100))/40 - (9*\exp(-$
 $27/100)*\sin(153/500))/8 + 3/8, (51*\cos(629/2000)*\exp(-111/400))/40 - (9*\exp(-$
 $111/400)*\sin(629/2000))/8 + 3/8, (51*\cos(323/1000)*\exp(-57/200))/40 - (9*\exp(-$
 $57/200)*\sin(323/1000))/8 + 3/8, (51*\cos(663/2000)*\exp(-117/400))/40 - (9*\exp(-$
 $117/400)*\sin(663/2000))/8 + 3/8, (51*\cos(17/50)*\exp(-3/10))/40 - (9*\exp(-3/10)*\sin(17/50))/8$
 $+ 3/8, (51*\cos(697/2000)*\exp(-123/400))/40 - (9*\exp(-123/400)*\sin(697/2000))/8 + 3/8,$
 $(51*\cos(357/1000)*\exp(-63/200))/40 - (9*\exp(-63/200)*\sin(357/1000))/8 + 3/8,$
 $(51*\cos(731/2000)*\exp(-129/400))/40 - (9*\exp(-129/400)*\sin(731/2000))/8 + 3/8,$
 $(51*\cos(187/500)*\exp(-33/100))/40 - (9*\exp(-33/100)*\sin(187/500))/8 + 3/8,$
 $(51*\cos(153/400)*\exp(-27/80))/40 - (9*\exp(-27/80)*\sin(153/400))/8 + 3/8,$
 $(51*\cos(391/1000)*\exp(-69/200))/40 - (9*\exp(-69/200)*\sin(391/1000))/8 + 3/8,$
 $(51*\cos(799/2000)*\exp(-141/400))/40 - (9*\exp(-141/400)*\sin(799/2000))/8 + 3/8,$
 $(51*\cos(51/125)*\exp(-9/25))/40 - (9*\exp(-9/25)*\sin(51/125))/8 + 3/8, (51*\cos(833/2000)*\exp(-$
 $147/400))/40 - (9*\exp(-147/400)*\sin(833/2000))/8 + 3/8, (51*\cos(17/40)*\exp(-3/8))/40 -$
 $(9*\exp(-3/8)*\sin(17/40))/8 + 3/8, (51*\cos(867/2000)*\exp(-153/400))/40 - (9*\exp(-$
 $153/400)*\sin(867/2000))/8 + 3/8, (51*\cos(221/500)*\exp(-39/100))/40 - (9*\exp(-$
 $39/100)*\sin(221/500))/8 + 3/8, (51*\cos(901/2000)*\exp(-159/400))/40 - (9*\exp(-$
 $159/400)*\sin(901/2000))/8 + 3/8, (51*\cos(459/1000)*\exp(-81/200))/40 - (9*\exp(-$
 $81/200)*\sin(459/1000))/8 + 3/8, (51*\cos(187/400)*\exp(-33/80))/40 - (9*\exp(-$
 $33/80)*\sin(187/400))/8 + 3/8, (51*\cos(119/250)*\exp(-21/50))/40 - (9*\exp(-$
 $21/50)*\sin(119/250))/8 + 3/8, (51*\cos(969/2000)*\exp(-171/400))/40 - (9*\exp(-$
 $171/400)*\sin(969/2000))/8 + 3/8, (51*\cos(493/1000)*\exp(-87/200))/40 - (9*\exp(-$
 $87/200)*\sin(493/1000))/8 + 3/8, (51*\cos(1003/2000)*\exp(-177/400))/40 - (9*\exp(-$
 $177/400)*\sin(1003/2000))/8 + 3/8, (51*\cos(51/100)*\exp(-9/20))/40 - (9*\exp(-$
 $9/20)*\sin(51/100))/8 + 3/8, (51*\cos(1037/2000)*\exp(-183/400))/40 - (9*\exp(-$
 $183/400)*\sin(1037/2000))/8 + 3/8, (51*\cos(527/1000)*\exp(-93/200))/40 - (9*\exp(-$
 $93/200)*\sin(527/1000))/8 + 3/8, (51*\cos(1071/2000)*\exp(-189/400))/40 - (9*\exp(-$
 $189/400)*\sin(1071/2000))/8 + 3/8, (51*\cos(68/125)*\exp(-12/25))/40 - (9*\exp(-$
 $12/25)*\sin(68/125))/8 + 3/8, (51*\cos(221/400)*\exp(-39/80))/40 - (9*\exp(-$
 $39/80)*\sin(221/400))/8 + 3/8, (51*\cos(561/1000)*\exp(-99/200))/40 - (9*\exp(-$
 $99/200)*\sin(561/1000))/8 + 3/8, (51*\cos(1139/2000)*\exp(-201/400))/40 - (9*\exp(-$
 $201/400)*\sin(1139/2000))/8 + 3/8, (51*\cos(289/500)*\exp(-51/100))/40 - (9*\exp(-$
 $51/100)*\sin(289/500))/8 + 3/8, (51*\cos(1173/2000)*\exp(-207/400))/40 - (9*\exp(-$
 $207/400)*\sin(1173/2000))/8 + 3/8, (51*\cos(119/200)*\exp(-21/40))/40 - (9*\exp(-$
 $21/40)*\sin(119/200))/8 + 3/8, (51*\cos(1207/2000)*\exp(-213/400))/40 - (9*\exp(-$
 $213/400)*\sin(1207/2000))/8 + 3/8, (51*\cos(153/250)*\exp(-27/50))/40 - (9*\exp(-$
 $27/50)*\sin(153/250))/8 + 3/8, (51*\cos(1241/2000)*\exp(-219/400))/40 - (9*\exp(-$
 $219/400)*\sin(1241/2000))/8 + 3/8, (51*\cos(629/1000)*\exp(-111/200))/40 - (9*\exp(-$
 $111/200)*\sin(629/1000))/8 + 3/8, (51*\cos(51/80)*\exp(-9/16))/40 - (9*\exp(-9/16)*\sin(51/80))/8$

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

$(51 \cdot \cos(51/50) \cdot \exp(-9/10))/40 - (9 \cdot \exp(-9/10) \cdot \sin(51/50))/8 + 3/8, (51 \cdot \cos(2057/2000) \cdot \exp(-363/400))/40 - (9 \cdot \exp(-363/400) \cdot \sin(2057/2000))/8 + 3/8, (51 \cdot \cos(1037/1000) \cdot \exp(-183/200))/40 - (9 \cdot \exp(-183/200) \cdot \sin(1037/1000))/8 + 3/8, (51 \cdot \cos(2091/2000) \cdot \exp(-369/400))/40 - (9 \cdot \exp(-369/400) \cdot \sin(2091/2000))/8 + 3/8, (51 \cdot \cos(527/500) \cdot \exp(-93/100))/40 - (9 \cdot \exp(-93/100) \cdot \sin(527/500))/8 + 3/8, (51 \cdot \cos(17/16) \cdot \exp(-15/16))/40 - (9 \cdot \exp(-15/16) \cdot \sin(17/16))/8 + 3/8, (51 \cdot \cos(1071/1000) \cdot \exp(-189/200))/40 - (9 \cdot \exp(-189/200) \cdot \sin(1071/1000))/8 + 3/8, (51 \cdot \cos(2159/2000) \cdot \exp(-381/400))/40 - (9 \cdot \exp(-381/400) \cdot \sin(2159/2000))/8 + 3/8, (51 \cdot \cos(136/125) \cdot \exp(-24/25))/40 - (9 \cdot \exp(-24/25) \cdot \sin(136/125))/8 + 3/8, (51 \cdot \cos(2193/2000) \cdot \exp(-387/400))/40 - (9 \cdot \exp(-387/400) \cdot \sin(2193/2000))/8 + 3/8, (51 \cdot \cos(221/200) \cdot \exp(-39/40))/40 - (9 \cdot \exp(-39/40) \cdot \sin(221/200))/8 + 3/8, (51 \cdot \cos(2227/2000) \cdot \exp(-393/400))/40 - (9 \cdot \exp(-393/400) \cdot \sin(2227/2000))/8 + 3/8, (51 \cdot \cos(561/500) \cdot \exp(-99/100))/40 - (9 \cdot \exp(-99/100) \cdot \sin(561/500))/8 + 3/8, (51 \cdot \cos(2261/2000) \cdot \exp(-399/400))/40 - (9 \cdot \exp(-399/400) \cdot \sin(2261/2000))/8 + 3/8, (51 \cdot \cos(1139/1000) \cdot \exp(-201/200))/40 - (9 \cdot \exp(-201/200) \cdot \sin(1139/1000))/8 + 3/8, (51 \cdot \cos(459/400) \cdot \exp(-81/80))/40 - (9 \cdot \exp(-81/80) \cdot \sin(459/400))/8 + 3/8, (51 \cdot \cos(289/250) \cdot \exp(-51/50))/40 - (9 \cdot \exp(-51/50) \cdot \sin(289/250))/8 + 3/8, (51 \cdot \cos(2329/2000) \cdot \exp(-411/400))/40 - (9 \cdot \exp(-411/400) \cdot \sin(2329/2000))/8 + 3/8, (51 \cdot \cos(1173/1000) \cdot \exp(-207/200))/40 - (9 \cdot \exp(-207/200) \cdot \sin(1173/1000))/8 + 3/8, (51 \cdot \cos(2363/2000) \cdot \exp(-417/400))/40 - (9 \cdot \exp(-417/400) \cdot \sin(2363/2000))/8 + 3/8, (51 \cdot \cos(119/100) \cdot \exp(-21/20))/40 - (9 \cdot \exp(-21/20) \cdot \sin(119/100))/8 + 3/8, (51 \cdot \cos(2397/2000) \cdot \exp(-423/400))/40 - (9 \cdot \exp(-423/400) \cdot \sin(2397/2000))/8 + 3/8, (51 \cdot \cos(1207/1000) \cdot \exp(-213/200))/40 - (9 \cdot \exp(-213/200) \cdot \sin(1207/1000))/8 + 3/8, (51 \cdot \cos(2431/2000) \cdot \exp(-429/400))/40 - (9 \cdot \exp(-429/400) \cdot \sin(2431/2000))/8 + 3/8, (51 \cdot \cos(153/125) \cdot \exp(-27/25))/40 - (9 \cdot \exp(-27/25) \cdot \sin(153/125))/8 + 3/8, (51 \cdot \cos(493/400) \cdot \exp(-87/80))/40 - (9 \cdot \exp(-87/80) \cdot \sin(493/400))/8 + 3/8, (51 \cdot \cos(1241/1000) \cdot \exp(-219/200))/40 - (9 \cdot \exp(-219/200) \cdot \sin(1241/1000))/8 + 3/8, (51 \cdot \cos(2499/2000) \cdot \exp(-441/400))/40 - (9 \cdot \exp(-441/400) \cdot \sin(2499/2000))/8 + 3/8, (51 \cdot \cos(629/500) \cdot \exp(-111/100))/40 - (9 \cdot \exp(-111/100) \cdot \sin(629/500))/8 + 3/8, (51 \cdot \cos(2533/2000) \cdot \exp(-447/400))/40 - (9 \cdot \exp(-447/400) \cdot \sin(2533/2000))/8 + 3/8, (51 \cdot \cos(51/40) \cdot \exp(-9/8))/40 - (9 \cdot \exp(-9/8) \cdot \sin(51/40))/8 + 3/8, (51 \cdot \cos(2567/2000) \cdot \exp(-453/400))/40 - (9 \cdot \exp(-453/400) \cdot \sin(2567/2000))/8 + 3/8, (51 \cdot \cos(323/250) \cdot \exp(-57/50))/40 - (9 \cdot \exp(-57/50) \cdot \sin(323/250))/8 + 3/8, (51 \cdot \cos(2601/2000) \cdot \exp(-459/400))/40 - (9 \cdot \exp(-459/400) \cdot \sin(2601/2000))/8 + 3/8, (51 \cdot \cos(1309/1000) \cdot \exp(-231/200))/40 - (9 \cdot \exp(-231/200) \cdot \sin(1309/1000))/8 + 3/8, (51 \cdot \cos(527/400) \cdot \exp(-93/80))/40 - (9 \cdot \exp(-93/80) \cdot \sin(527/400))/8 + 3/8, (51 \cdot \cos(663/500) \cdot \exp(-117/100))/40 - (9 \cdot \exp(-117/100) \cdot \sin(663/500))/8 + 3/8, (51 \cdot \cos(2669/2000) \cdot \exp(-471/400))/40 - (9 \cdot \exp(-471/400) \cdot \sin(2669/2000))/8 + 3/8, (51 \cdot \cos(1343/1000) \cdot \exp(-237/200))/40 - (9 \cdot \exp(-237/200) \cdot \sin(1343/1000))/8 + 3/8, (51 \cdot \cos(2703/2000) \cdot \exp(-477/400))/40 - (9 \cdot \exp(-477/400) \cdot \sin(2703/2000))/8 + 3/8, (51 \cdot \cos(34/25) \cdot \exp(-6/5))/40 - (9 \cdot \exp(-6/5) \cdot \sin(34/25))/8 + 3/8, (51 \cdot \cos(2737/2000) \cdot \exp(-483/400))/40 - (9 \cdot \exp(-483/400) \cdot \sin(2737/2000))/8 + 3/8, (51 \cdot \cos(1377/1000) \cdot \exp(-243/200))/40 - (9 \cdot \exp(-243/200) \cdot \sin(1377/1000))/8 + 3/8, (51 \cdot \cos(2771/2000) \cdot \exp(-489/400))/40 - (9 \cdot \exp(-489/400) \cdot \sin(2771/2000))/8 + 3/8, (51 \cdot \cos(697/500) \cdot \exp(-$

$123/100)/40 - (9*\exp(-123/100)*\sin(697/500))/8 + 3/8, (51*\cos(561/400)*\exp(-99/80))/40 -$
 $(9*\exp(-99/80)*\sin(561/400))/8 + 3/8, (51*\cos(1411/1000)*\exp(-249/200))/40 - (9*\exp(-$
 $249/200)*\sin(1411/1000))/8 + 3/8, (51*\cos(2839/2000)*\exp(-501/400))/40 - (9*\exp(-$
 $501/400)*\sin(2839/2000))/8 + 3/8, (51*\cos(357/250)*\exp(-63/50))/40 - (9*\exp(-$
 $63/50)*\sin(357/250))/8 + 3/8, (51*\cos(2873/2000)*\exp(-507/400))/40 - (9*\exp(-$
 $507/400)*\sin(2873/2000))/8 + 3/8, (51*\cos(289/200)*\exp(-51/40))/40 - (9*\exp(-$
 $51/40)*\sin(289/200))/8 + 3/8, (51*\cos(2907/2000)*\exp(-513/400))/40 - (9*\exp(-$
 $513/400)*\sin(2907/2000))/8 + 3/8, (51*\cos(731/500)*\exp(-129/100))/40 - (9*\exp(-$
 $129/100)*\sin(731/500))/8 + 3/8, (51*\cos(2941/2000)*\exp(-519/400))/40 - (9*\exp(-$
 $519/400)*\sin(2941/2000))/8 + 3/8, (51*\cos(1479/1000)*\exp(-261/200))/40 - (9*\exp(-$
 $261/200)*\sin(1479/1000))/8 + 3/8, (51*\cos(119/80)*\exp(-21/16))/40 - (9*\exp(-$
 $21/16)*\sin(119/80))/8 + 3/8, (51*\cos(187/125)*\exp(-33/25))/40 - (9*\exp(-$
 $33/25)*\sin(187/125))/8 + 3/8, (51*\cos(3009/2000)*\exp(-531/400))/40 - (9*\exp(-$
 $531/400)*\sin(3009/2000))/8 + 3/8, (51*\cos(1513/1000)*\exp(-267/200))/40 - (9*\exp(-$
 $267/200)*\sin(1513/1000))/8 + 3/8, (51*\cos(3043/2000)*\exp(-537/400))/40 - (9*\exp(-$
 $537/400)*\sin(3043/2000))/8 + 3/8, (51*\cos(153/100)*\exp(-27/20))/40 - (9*\exp(-$
 $27/20)*\sin(153/100))/8 + 3/8, (51*\cos(3077/2000)*\exp(-543/400))/40 - (9*\exp(-$
 $543/400)*\sin(3077/2000))/8 + 3/8, (51*\cos(1547/1000)*\exp(-273/200))/40 - (9*\exp(-$
 $273/200)*\sin(1547/1000))/8 + 3/8, (51*\cos(3111/2000)*\exp(-549/400))/40 - (9*\exp(-$
 $549/400)*\sin(3111/2000))/8 + 3/8, (51*\cos(391/250)*\exp(-69/50))/40 - (9*\exp(-$
 $69/50)*\sin(391/250))/8 + 3/8, (51*\cos(629/400)*\exp(-111/80))/40 - (9*\exp(-$
 $111/80)*\sin(629/400))/8 + 3/8, (51*\cos(1581/1000)*\exp(-279/200))/40 - (9*\exp(-$
 $279/200)*\sin(1581/1000))/8 + 3/8, (51*\cos(3179/2000)*\exp(-561/400))/40 - (9*\exp(-$
 $561/400)*\sin(3179/2000))/8 + 3/8, (51*\cos(799/500)*\exp(-141/100))/40 - (9*\exp(-$
 $141/100)*\sin(799/500))/8 + 3/8, (51*\cos(3213/2000)*\exp(-567/400))/40 - (9*\exp(-$
 $567/400)*\sin(3213/2000))/8 + 3/8, (51*\cos(323/200)*\exp(-57/40))/40 - (9*\exp(-$
 $57/40)*\sin(323/200))/8 + 3/8, (51*\cos(3247/2000)*\exp(-573/400))/40 - (9*\exp(-$
 $573/400)*\sin(3247/2000))/8 + 3/8, (51*\cos(204/125)*\exp(-36/25))/40 - (9*\exp(-$
 $36/25)*\sin(204/125))/8 + 3/8, (51*\cos(3281/2000)*\exp(-579/400))/40 - (9*\exp(-$
 $579/400)*\sin(3281/2000))/8 + 3/8, (51*\cos(1649/1000)*\exp(-291/200))/40 - (9*\exp(-$
 $291/200)*\sin(1649/1000))/8 + 3/8, (51*\cos(663/400)*\exp(-117/80))/40 - (9*\exp(-$
 $117/80)*\sin(663/400))/8 + 3/8, (51*\cos(833/500)*\exp(-147/100))/40 - (9*\exp(-$
 $147/100)*\sin(833/500))/8 + 3/8, (51*\cos(3349/2000)*\exp(-591/400))/40 - (9*\exp(-$
 $591/400)*\sin(3349/2000))/8 + 3/8, (51*\cos(1683/1000)*\exp(-297/200))/40 - (9*\exp(-$
 $297/200)*\sin(1683/1000))/8 + 3/8, (51*\cos(3383/2000)*\exp(-597/400))/40 - (9*\exp(-$
 $597/400)*\sin(3383/2000))/8 + 3/8, (51*\cos(17/10)*\exp(-3/2))/40 - (9*\exp(-3/2)*\sin(17/10))/8 +$
 $3/8, (51*\cos(3417/2000)*\exp(-603/400))/40 - (9*\exp(-603/400)*\sin(3417/2000))/8 + 3/8,$
 $(51*\cos(1717/1000)*\exp(-303/200))/40 - (9*\exp(-303/200)*\sin(1717/1000))/8 + 3/8,$
 $(51*\cos(3451/2000)*\exp(-609/400))/40 - (9*\exp(-609/400)*\sin(3451/2000))/8 + 3/8,$
 $(51*\cos(867/500)*\exp(-153/100))/40 - (9*\exp(-153/100)*\sin(867/500))/8 + 3/8,$
 $(51*\cos(697/400)*\exp(-123/80))/40 - (9*\exp(-123/80)*\sin(697/400))/8 + 3/8,$
 $(51*\cos(1751/1000)*\exp(-309/200))/40 - (9*\exp(-309/200)*\sin(1751/1000))/8 + 3/8,$
 $(51*\cos(3519/2000)*\exp(-621/400))/40 - (9*\exp(-621/400)*\sin(3519/2000))/8 + 3/8,$

(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*cos(187/100)*exp(-33/20))/40 - (9*exp(-33/20)*sin(187/100))/8 + 3/8,
(51*cos(3757/2000)*exp(-663/400))/40 - (9*exp(-663/400)*sin(3757/2000))/8 + 3/8,
(51*cos(1887/1000)*exp(-333/200))/40 - (9*exp(-333/200)*sin(1887/1000))/8 + 3/8,
(51*cos(3791/2000)*exp(-669/400))/40 - (9*exp(-669/400)*sin(3791/2000))/8 + 3/8,
(51*cos(238/125)*exp(-42/25))/40 - (9*exp(-42/25)*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]

a =

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

an =

$$\begin{aligned} & [-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(- \end{aligned}$$

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*exp(-
147/200)*sin(833/1000))/25, - (153*cos(1683/2000)*exp(-297/400))/80 - (6*exp(-
297/400)*sin(1683/2000))/25, - (153*cos(17/20)*exp(-3/4))/80 - (6*exp(-3/4)*sin(17/20))/25, -
(153*cos(1717/2000)*exp(-303/400))/80 - (6*exp(-303/400)*sin(1717/2000))/25, -
(153*cos(867/1000)*exp(-153/200))/80 - (6*exp(-153/200)*sin(867/1000))/25, -
(153*cos(1751/2000)*exp(-309/400))/80 - (6*exp(-309/400)*sin(1751/2000))/25, -
(153*cos(221/250)*exp(-39/50))/80 - (6*exp(-39/50)*sin(221/250))/25, -
(153*cos(357/400)*exp(-63/80))/80 - (6*exp(-63/80)*sin(357/400))/25, -
(153*cos(901/1000)*exp(-159/200))/80 - (6*exp(-159/200)*sin(901/1000))/25, -
(153*cos(1819/2000)*exp(-321/400))/80 - (6*exp(-321/400)*sin(1819/2000))/25, -
(153*cos(459/500)*exp(-81/100))/80 - (6*exp(-81/100)*sin(459/500))/25, -
(153*cos(1853/2000)*exp(-327/400))/80 - (6*exp(-327/400)*sin(1853/2000))/25, -
(153*cos(187/200)*exp(-33/40))/80 - (6*exp(-33/40)*sin(187/200))/25, -
(153*cos(1887/2000)*exp(-333/400))/80 - (6*exp(-333/400)*sin(1887/2000))/25, -
(153*cos(119/125)*exp(-21/25))/80 - (6*exp(-21/25)*sin(119/125))/25, -
(153*cos(1921/2000)*exp(-339/400))/80 - (6*exp(-339/400)*sin(1921/2000))/25, -
(153*cos(969/1000)*exp(-171/200))/80 - (6*exp(-171/200)*sin(969/1000))/25, -
(153*cos(391/400)*exp(-69/80))/80 - (6*exp(-69/80)*sin(391/400))/25, -
(153*cos(493/500)*exp(-87/100))/80 - (6*exp(-87/100)*sin(493/500))/25, -
(153*cos(1989/2000)*exp(-351/400))/80 - (6*exp(-351/400)*sin(1989/2000))/25, -
(153*cos(1003/1000)*exp(-177/200))/80 - (6*exp(-177/200)*sin(1003/1000))/25, -
(153*cos(2023/2000)*exp(-357/400))/80 - (6*exp(-357/400)*sin(2023/2000))/25, -
(153*cos(51/50)*exp(-9/10))/80 - (6*exp(-9/10)*sin(51/50))/25, - (153*cos(2057/2000)*exp(-
363/400))/80 - (6*exp(-363/400)*sin(2057/2000))/25, - (153*cos(1037/1000)*exp(-

183/200))/80 - (6*exp(-183/200)*sin(1037/1000))/25, - (153*cos(2091/2000)*exp(-369/400))/80 - (6*exp(-369/400)*sin(2091/2000))/25, - (153*cos(527/500)*exp(-93/100))/80 - (6*exp(-93/100)*sin(527/500))/25, - (153*cos(17/16)*exp(-15/16))/80 - (6*exp(-15/16)*sin(17/16))/25, - (153*cos(1071/1000)*exp(-189/200))/80 - (6*exp(-189/200)*sin(1071/1000))/25, - (153*cos(2159/2000)*exp(-381/400))/80 - (6*exp(-381/400)*sin(2159/2000))/25, - (153*cos(136/125)*exp(-24/25))/80 - (6*exp(-24/25)*sin(136/125))/25, - (153*cos(2193/2000)*exp(-387/400))/80 - (6*exp(-387/400)*sin(2193/2000))/25, - (153*cos(221/200)*exp(-39/40))/80 - (6*exp(-39/40)*sin(221/200))/25, - (153*cos(2227/2000)*exp(-393/400))/80 - (6*exp(-393/400)*sin(2227/2000))/25, - (153*cos(561/500)*exp(-99/100))/80 - (6*exp(-99/100)*sin(561/500))/25, - (153*cos(2261/2000)*exp(-399/400))/80 - (6*exp(-399/400)*sin(2261/2000))/25, - (153*cos(1139/1000)*exp(-201/200))/80 - (6*exp(-201/200)*sin(1139/1000))/25, - (153*cos(459/400)*exp(-81/80))/80 - (6*exp(-81/80)*sin(459/400))/25, - (153*cos(289/250)*exp(-51/50))/80 - (6*exp(-51/50)*sin(289/250))/25, - (153*cos(2329/2000)*exp(-411/400))/80 - (6*exp(-411/400)*sin(2329/2000))/25, - (153*cos(1173/1000)*exp(-207/200))/80 - (6*exp(-207/200)*sin(1173/1000))/25, - (153*cos(2363/2000)*exp(-417/400))/80 - (6*exp(-417/400)*sin(2363/2000))/25, - (153*cos(119/100)*exp(-21/20))/80 - (6*exp(-21/20)*sin(119/100))/25, - (153*cos(2397/2000)*exp(-423/400))/80 - (6*exp(-423/400)*sin(2397/2000))/25, - (153*cos(1207/1000)*exp(-213/200))/80 - (6*exp(-213/200)*sin(1207/1000))/25, - (153*cos(2431/2000)*exp(-429/400))/80 - (6*exp(-429/400)*sin(2431/2000))/25, - (153*cos(153/125)*exp(-27/25))/80 - (6*exp(-27/25)*sin(153/125))/25, - (153*cos(493/400)*exp(-87/80))/80 - (6*exp(-87/80)*sin(493/400))/25, - (153*cos(1241/1000)*exp(-219/200))/80 - (6*exp(-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, - (153*cos(2057/1000)*exp(-
363/200))/80 - (6*exp(-363/200)*sin(2057/1000))/25, - (153*cos(4131/2000)*exp(-
729/400))/80 - (6*exp(-729/400)*sin(4131/2000))/25, - (153*cos(1037/500)*exp(-183/100))/80
- (6*exp(-183/100)*sin(1037/500))/25, - (153*cos(833/400)*exp(-147/80))/80 - (6*exp(-
147/80)*sin(833/400))/25, - (153*cos(2091/1000)*exp(-369/200))/80 - (6*exp(-
369/200)*sin(2091/1000))/25, - (153*cos(4199/2000)*exp(-741/400))/80 - (6*exp(-
741/400)*sin(4199/2000))/25, - (153*cos(527/250)*exp(-93/50))/80 - (6*exp(-
93/50)*sin(527/250))/25, - (153*cos(4233/2000)*exp(-747/400))/80 - (6*exp(-
747/400)*sin(4233/2000))/25, - (153*cos(17/8)*exp(-15/8))/80 - (6*exp(-15/8)*sin(17/8))/25]

y =

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

volume =

$$\frac{(825 \sin(440/7))}{896} - \frac{(825 \sin(220/7))}{256} - \frac{(825 \sin(660/7))}{3584} + \frac{(275 \sin(880/7))}{7168} - \frac{(11 \sin(1100/7))}{3584} + \frac{27225}{448}$$

volume =

60.7456

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