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**DEPT; COMPUTER ENGINEERING**  
**MATRIC NO.; 16/ENG02/040**  
**COURSE; ENGINEERING MATHEMATICS 1**  
**DATE; 20<sup>TH</sup> OF NOVEMBER, 2017.**

**QUESTION 1**

```
commandwindow
clc
clear
a=[0 10 4 -2; -3 -17 1 2; 1 1 1 0; 8 -34 16 -10]
b=[-4;2;6;4]
c=inv(a)
x=c*b
format short
```

**ANSWERS..**

a =

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

b =

```
-4
2
```

6

4

c =

```
-0.1786 -0.1020 0.5714 0.0153  
0.0357 -0.0153 0.0357 -0.0102  
0.1429 0.1173 0.3929 -0.0051  
-0.0357 0.1582 0.9643 -0.0612
```

x =

```
4.0000  
-0.0000  
2.0000  
6.0000
```

## QUESTION 2

```
commandwindow  
clc  
clear  
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)  
a=diff(v)  
vn=subs(v,tn)  
an=subs(a,tn)  
figure(1)  
plot(tn,vn,tn,an)  
grid on  
grid minor  
axis tight  
xlabel('time(sec)')
```

```
ylabel('variable')
legend('velocity(km/min)', 'acceleration(km/min^2)')
```

ANSWERS

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 =

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

a =

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

vn =

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

$$\begin{aligned}
& - (9 \exp(-51/400) \sin(289/2000)) / 8 + 3/8, \\
& (51 \cos(153/1000) \exp(-27/200)) / 40 - (9 \exp(- \\
& 27/200) \sin(153/1000)) / 8 + 3/8, (51 \cos(323/2000) \exp(- \\
& 57/400)) / 40 - (9 \exp(-57/400) \sin(323/2000)) / 8 + 3/8, \\
& (51 \cos(17/100) \exp(-3/20)) / 40 - (9 \exp(-3/20) \sin(17/100)) / 8 \\
& + 3/8, (51 \cos(357/2000) \exp(-63/400)) / 40 - (9 \exp(- \\
& 63/400) \sin(357/2000)) / 8 + 3/8, (51 \cos(187/1000) \exp(- \\
& 33/200)) / 40 - (9 \exp(-33/200) \sin(187/1000)) / 8 + 3/8, \\
& (51 \cos(391/2000) \exp(-69/400)) / 40 - (9 \exp(- \\
& 69/400) \sin(391/2000)) / 8 + 3/8, (51 \cos(51/250) \exp(-9/50)) / 40 \\
& - (9 \exp(-9/50) \sin(51/250)) / 8 + 3/8, (51 \cos(17/80) \exp(- \\
& 3/16)) / 40 - (9 \exp(-3/16) \sin(17/80)) / 8 + 3/8, \\
& (51 \cos(221/1000) \exp(-39/200)) / 40 - (9 \exp(- \\
& 39/200) \sin(221/1000)) / 8 + 3/8, (51 \cos(459/2000) \exp(- \\
& 81/400)) / 40 - (9 \exp(-81/400) \sin(459/2000)) / 8 + 3/8, \\
& (51 \cos(119/500) \exp(-21/100)) / 40 - (9 \exp(- \\
& 21/100) \sin(119/500)) / 8 + 3/8, (51 \cos(493/2000) \exp(- \\
& 87/400)) / 40 - (9 \exp(-87/400) \sin(493/2000)) / 8 + 3/8, \\
& (51 \cos(51/200) \exp(-9/40)) / 40 - (9 \exp(-9/40) \sin(51/200)) / 8 \\
& + 3/8, (51 \cos(527/2000) \exp(-93/400)) / 40 - (9 \exp(- \\
& 93/400) \sin(527/2000)) / 8 + 3/8, (51 \cos(34/125) \exp(-6/25)) / 40 \\
& - (9 \exp(-6/25) \sin(34/125)) / 8 + 3/8, (51 \cos(561/2000) \exp(- \\
& 99/400)) / 40 - (9 \exp(-99/400) \sin(561/2000)) / 8 + 3/8, \\
& (51 \cos(289/1000) \exp(-51/200)) / 40 - (9 \exp(- \\
& 51/200) \sin(289/1000)) / 8 + 3/8, (51 \cos(119/400) \exp(- \\
& 21/80)) / 40 - (9 \exp(-21/80) \sin(119/400)) / 8 + 3/8, \\
& (51 \cos(153/500) \exp(-27/100)) / 40 - (9 \exp(- \\
& 27/100) \sin(153/500)) / 8 + 3/8, (51 \cos(629/2000) \exp(- \\
& 111/400)) / 40 - (9 \exp(-111/400) \sin(629/2000)) / 8 + 3/8, \\
& (51 \cos(323/1000) \exp(-57/200)) / 40 - (9 \exp(- \\
& 57/200) \sin(323/1000)) / 8 + 3/8, (51 \cos(663/2000) \exp(- \\
& 117/400)) / 40 - (9 \exp(-117/400) \sin(663/2000)) / 8 + 3/8, \\
& (51 \cos(17/50) \exp(-3/10)) / 40 - (9 \exp(-3/10) \sin(17/50)) / 8 + \\
& 3/8, (51 \cos(697/2000) \exp(-123/400)) / 40 - (9 \exp(- \\
& 123/400) \sin(697/2000)) / 8 + 3/8, (51 \cos(357/1000) \exp(- \\
& 63/200)) / 40 - (9 \exp(-63/200) \sin(357/1000)) / 8 + 3/8, \\
& (51 \cos(731/2000) \exp(-129/400)) / 40 - (9 \exp(- \\
& 129/400) \sin(731/2000)) / 8 + 3/8, (51 \cos(187/500) \exp(- \\
& 33/100)) / 40 - (9 \exp(-33/100) \sin(187/500)) / 8 + 3/8, \\
& (51 \cos(153/400) \exp(-27/80)) / 40 - (9 \exp(- \\
& 27/80) \sin(153/400)) / 8 + 3/8, (51 \cos(391/1000) \exp(- \\
& 69/200)) / 40 - (9 \exp(-69/200) \sin(391/1000)) / 8 + 3/8, \\
& (51 \cos(799/2000) \exp(-141/400)) / 40 - (9 \exp(- \\
& 141/400) \sin(799/2000)) / 8 + 3/8, (51 \cos(51/125) \exp(- \\
& 9/25)) / 40 - (9 \exp(-9/25) \sin(51/125)) / 8 + 3/8, \\
& (51 \cos(833/2000) \exp(-147/400)) / 40 - (9 \exp(- \\
& 147/400) \sin(833/2000)) / 8 + 3/8, (51 \cos(17/40) \exp(-3/8)) / 40 \\
& - (9 \exp(-3/8) \sin(17/40)) / 8 + 3/8, (51 \cos(867/2000) \exp(- \\
& 153/400)) / 40 - (9 \exp(-153/400) \sin(867/2000)) / 8 + 3/8, \\
& (51 \cos(221/500) \exp(-39/100)) / 40 - (9 \exp(- \\
& 39/100) \sin(221/500)) / 8 + 3/8, (51 \cos(901/2000) \exp(-
\end{aligned}$$

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(-

$$\begin{aligned}
& 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*\cos(51/50)*\exp(-9/10))/40 - (9*\exp(-9/10)*\sin(51/50))/8 + \\
& 3/8, (51*\cos(2057/2000)*\exp(-363/400))/40 - (9*\exp(- \\
& 363/400)*\sin(2057/2000))/8 + 3/8, (51*\cos(1037/1000)*\exp(- \\
& 183/200))/40 - (9*\exp(-183/200)*\sin(1037/1000))/8 + 3/8,
\end{aligned}$$

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

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,

$(51 \cdot \cos(204/125) \cdot \exp(-36/25))/40 - (9 \cdot \exp(-36/25) \cdot \sin(204/125))/8 + 3/8,$ 
 $(51 \cdot \cos(3281/2000) \cdot \exp(-579/400))/40 - (9 \cdot \exp(-579/400) \cdot \sin(3281/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1649/1000) \cdot \exp(-291/200))/40 - (9 \cdot \exp(-291/200) \cdot \sin(1649/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(663/400) \cdot \exp(-117/80))/40 - (9 \cdot \exp(-117/80) \cdot \sin(663/400))/8 + 3/8,$ 
 $(51 \cdot \cos(833/500) \cdot \exp(-147/100))/40 - (9 \cdot \exp(-147/100) \cdot \sin(833/500))/8 + 3/8,$ 
 $(51 \cdot \cos(3349/2000) \cdot \exp(-591/400))/40 - (9 \cdot \exp(-591/400) \cdot \sin(3349/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1683/1000) \cdot \exp(-297/200))/40 - (9 \cdot \exp(-297/200) \cdot \sin(1683/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(3383/2000) \cdot \exp(-597/400))/40 - (9 \cdot \exp(-597/400) \cdot \sin(3383/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(17/10) \cdot \exp(-3/2))/40 - (9 \cdot \exp(-3/2) \cdot \sin(17/10))/8 + 3/8,$ 
 $(51 \cdot \cos(3417/2000) \cdot \exp(-603/400))/40 - (9 \cdot \exp(-603/400) \cdot \sin(3417/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1717/1000) \cdot \exp(-303/200))/40 - (9 \cdot \exp(-303/200) \cdot \sin(1717/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(3451/2000) \cdot \exp(-609/400))/40 - (9 \cdot \exp(-609/400) \cdot \sin(3451/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(867/500) \cdot \exp(-153/100))/40 - (9 \cdot \exp(-153/100) \cdot \sin(867/500))/8 + 3/8,$ 
 $(51 \cdot \cos(697/400) \cdot \exp(-123/80))/40 - (9 \cdot \exp(-123/80) \cdot \sin(697/400))/8 + 3/8,$ 
 $(51 \cdot \cos(1751/1000) \cdot \exp(-309/200))/40 - (9 \cdot \exp(-309/200) \cdot \sin(1751/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(3519/2000) \cdot \exp(-621/400))/40 - (9 \cdot \exp(-621/400) \cdot \sin(3519/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(221/125) \cdot \exp(-39/25))/40 - (9 \cdot \exp(-39/25) \cdot \sin(221/125))/8 + 3/8,$ 
 $(51 \cdot \cos(3553/2000) \cdot \exp(-627/400))/40 - (9 \cdot \exp(-627/400) \cdot \sin(3553/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(357/200) \cdot \exp(-63/40))/40 - (9 \cdot \exp(-63/40) \cdot \sin(357/200))/8 + 3/8,$ 
 $(51 \cdot \cos(3587/2000) \cdot \exp(-633/400))/40 - (9 \cdot \exp(-633/400) \cdot \sin(3587/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(901/500) \cdot \exp(-159/100))/40 - (9 \cdot \exp(-159/100) \cdot \sin(901/500))/8 + 3/8,$ 
 $(51 \cdot \cos(3621/2000) \cdot \exp(-639/400))/40 - (9 \cdot \exp(-639/400) \cdot \sin(3621/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1819/1000) \cdot \exp(-321/200))/40 - (9 \cdot \exp(-321/200) \cdot \sin(1819/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(731/400) \cdot \exp(-129/80))/40 - (9 \cdot \exp(-129/80) \cdot \sin(731/400))/8 + 3/8,$ 
 $(51 \cdot \cos(459/250) \cdot \exp(-81/50))/40 - (9 \cdot \exp(-81/50) \cdot \sin(459/250))/8 + 3/8,$ 
 $(51 \cdot \cos(3689/2000) \cdot \exp(-651/400))/40 - (9 \cdot \exp(-651/400) \cdot \sin(3689/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1853/1000) \cdot \exp(-327/200))/40 - (9 \cdot \exp(-327/200) \cdot \sin(1853/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(3723/2000) \cdot \exp(-657/400))/40 - (9 \cdot \exp(-657/400) \cdot \sin(3723/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(187/100) \cdot \exp(-33/20))/40 - (9 \cdot \exp(-33/20) \cdot \sin(187/100))/8 + 3/8,$ 
 $(51 \cdot \cos(3757/2000) \cdot \exp(-663/400))/40 - (9 \cdot \exp(-663/400) \cdot \sin(3757/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(1887/1000) \cdot \exp(-333/200))/40 - (9 \cdot \exp(-333/200) \cdot \sin(1887/1000))/8 + 3/8,$ 
 $(51 \cdot \cos(3791/2000) \cdot \exp(-669/400))/40 - (9 \cdot \exp(-669/400) \cdot \sin(3791/2000))/8 + 3/8,$ 
 $(51 \cdot \cos(238/125) \cdot \exp(-42/25))/40 - (9 \cdot \exp(-42/25) \cdot \sin(238/125))/8 + 3/8,$ 
 $(51 \cdot \cos(153/80) \cdot \exp(-27/16))/40 - (9 \cdot \exp(-27/16) \cdot \sin(153/80))/8 + 3/8,$ 
 $(51 \cdot \cos(1921/1000) \cdot \exp(-$

$$\begin{aligned}
& 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]
\end{aligned}$$

an =

$$\begin{aligned}
& [-153/80, - (153*\cos(17/2000)*\exp(-3/400))/80 - (6*\exp(- \\
& 3/400)*\sin(17/2000))/25, - (153*\cos(17/1000)*\exp(-3/200))/80 - \\
& (6*\exp(-3/200)*\sin(17/1000))/25, - (153*\cos(51/2000)*\exp(- \\
& 9/400))/80 - (6*\exp(-9/400)*\sin(51/2000))/25, - \\
& (153*\cos(17/500)*\exp(-3/100))/80 - (6*\exp(- \\
& 3/100)*\sin(17/500))/25, - (153*\cos(17/400)*\exp(-3/80))/80 - \\
& (6*\exp(-3/80)*\sin(17/400))/25, - (153*\cos(51/1000)*\exp(- \\
& 9/200))/80 - (6*\exp(-9/200)*\sin(51/1000))/25, - \\
& (153*\cos(119/2000)*\exp(-21/400))/80 - (6*\exp(- \\
& 21/400)*\sin(119/2000))/25, - (153*\cos(17/250)*\exp(-3/50))/80 -
\end{aligned}$$

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

$(153 \cdot \cos(153/400) \cdot \exp(-27/80))/80 - (6 \cdot \exp(-27/80) \cdot \sin(153/400))/25, - (153 \cdot \cos(391/1000) \cdot \exp(-69/200))/80 - (6 \cdot \exp(-69/200) \cdot \sin(391/1000))/25, -$   
 $(153 \cdot \cos(799/2000) \cdot \exp(-141/400))/80 - (6 \cdot \exp(-141/400) \cdot \sin(799/2000))/25, - (153 \cdot \cos(51/125) \cdot \exp(-9/25))/80 - (6 \cdot \exp(-9/25) \cdot \sin(51/125))/25, - (153 \cdot \cos(833/2000) \cdot \exp(-147/400))/80 - (6 \cdot \exp(-147/400) \cdot \sin(833/2000))/25, -$   
 $(153 \cdot \cos(17/40) \cdot \exp(-3/8))/80 - (6 \cdot \exp(-3/8) \cdot \sin(17/40))/25, - (153 \cdot \cos(867/2000) \cdot \exp(-153/400))/80 - (6 \cdot \exp(-153/400) \cdot \sin(867/2000))/25, - (153 \cdot \cos(221/500) \cdot \exp(-39/100))/80 - (6 \cdot \exp(-39/100) \cdot \sin(221/500))/25, -$   
 $(153 \cdot \cos(901/2000) \cdot \exp(-159/400))/80 - (6 \cdot \exp(-159/400) \cdot \sin(901/2000))/25, - (153 \cdot \cos(459/1000) \cdot \exp(-81/200))/80 - (6 \cdot \exp(-81/200) \cdot \sin(459/1000))/25, -$   
 $(153 \cdot \cos(187/400) \cdot \exp(-33/80))/80 - (6 \cdot \exp(-33/80) \cdot \sin(187/400))/25, - (153 \cdot \cos(119/250) \cdot \exp(-21/50))/80 - (6 \cdot \exp(-21/50) \cdot \sin(119/250))/25, - (153 \cdot \cos(969/2000) \cdot \exp(-171/400))/80 - (6 \cdot \exp(-171/400) \cdot \sin(969/2000))/25, -$   
 $(153 \cdot \cos(493/1000) \cdot \exp(-87/200))/80 - (6 \cdot \exp(-87/200) \cdot \sin(493/1000))/25, - (153 \cdot \cos(1003/2000) \cdot \exp(-177/400))/80 - (6 \cdot \exp(-177/400) \cdot \sin(1003/2000))/25, -$   
 $(153 \cdot \cos(51/100) \cdot \exp(-9/20))/80 - (6 \cdot \exp(-9/20) \cdot \sin(51/100))/25, - (153 \cdot \cos(1037/2000) \cdot \exp(-183/400))/80 - (6 \cdot \exp(-183/400) \cdot \sin(1037/2000))/25, -$   
 $(153 \cdot \cos(527/1000) \cdot \exp(-93/200))/80 - (6 \cdot \exp(-93/200) \cdot \sin(527/1000))/25, - (153 \cdot \cos(1071/2000) \cdot \exp(-189/400))/80 - (6 \cdot \exp(-189/400) \cdot \sin(1071/2000))/25, -$   
 $(153 \cdot \cos(68/125) \cdot \exp(-12/25))/80 - (6 \cdot \exp(-12/25) \cdot \sin(68/125))/25, - (153 \cdot \cos(221/400) \cdot \exp(-39/80))/80 - (6 \cdot \exp(-39/80) \cdot \sin(221/400))/25, - (153 \cdot \cos(561/1000) \cdot \exp(-99/200))/80 - (6 \cdot \exp(-99/200) \cdot \sin(561/1000))/25, -$   
 $(153 \cdot \cos(1139/2000) \cdot \exp(-201/400))/80 - (6 \cdot \exp(-201/400) \cdot \sin(1139/2000))/25, - (153 \cdot \cos(289/500) \cdot \exp(-51/100))/80 - (6 \cdot \exp(-51/100) \cdot \sin(289/500))/25, -$   
 $(153 \cdot \cos(1173/2000) \cdot \exp(-207/400))/80 - (6 \cdot \exp(-207/400) \cdot \sin(1173/2000))/25, - (153 \cdot \cos(119/200) \cdot \exp(-21/40))/80 - (6 \cdot \exp(-21/40) \cdot \sin(119/200))/25, -$   
 $(153 \cdot \cos(1207/2000) \cdot \exp(-213/400))/80 - (6 \cdot \exp(-213/400) \cdot \sin(1207/2000))/25, - (153 \cdot \cos(153/250) \cdot \exp(-27/50))/80 - (6 \cdot \exp(-27/50) \cdot \sin(153/250))/25, -$   
 $(153 \cdot \cos(1241/2000) \cdot \exp(-219/400))/80 - (6 \cdot \exp(-219/400) \cdot \sin(1241/2000))/25, - (153 \cdot \cos(629/1000) \cdot \exp(-111/200))/80 - (6 \cdot \exp(-111/200) \cdot \sin(629/1000))/25, -$   
 $(153 \cdot \cos(51/80) \cdot \exp(-9/16))/80 - (6 \cdot \exp(-9/16) \cdot \sin(51/80))/25, - (153 \cdot \cos(323/500) \cdot \exp(-57/100))/80 - (6 \cdot \exp(-57/100) \cdot \sin(323/500))/25, - (153 \cdot \cos(1309/2000) \cdot \exp(-231/400))/80 - (6 \cdot \exp(-231/400) \cdot \sin(1309/2000))/25, -$   
 $(153 \cdot \cos(663/1000) \cdot \exp(-117/200))/80 - (6 \cdot \exp(-117/200) \cdot \sin(663/1000))/25, - (153 \cdot \cos(1343/2000) \cdot \exp(-237/400))/80 - (6 \cdot \exp(-237/400) \cdot \sin(1343/2000))/25, -$   
 $(153 \cdot \cos(17/25) \cdot \exp(-3/5))/80 - (6 \cdot \exp(-3/5) \cdot \sin(17/25))/25, -$

$(153 \cdot \cos(1377/2000) \cdot \exp(-243/400))/80 - (6 \cdot \exp(-243/400) \cdot \sin(1377/2000))/25, - (153 \cdot \cos(697/1000) \cdot \exp(-123/200))/80 - (6 \cdot \exp(-123/200) \cdot \sin(697/1000))/25, - (153 \cdot \cos(1411/2000) \cdot \exp(-249/400))/80 - (6 \cdot \exp(-249/400) \cdot \sin(1411/2000))/25, - (153 \cdot \cos(357/500) \cdot \exp(-63/100))/80 - (6 \cdot \exp(-63/100) \cdot \sin(357/500))/25, - (153 \cdot \cos(289/400) \cdot \exp(-51/80))/80 - (6 \cdot \exp(-51/80) \cdot \sin(289/400))/25, - (153 \cdot \cos(731/1000) \cdot \exp(-129/200))/80 - (6 \cdot \exp(-129/200) \cdot \sin(731/1000))/25, - (153 \cdot \cos(1479/2000) \cdot \exp(-261/400))/80 - (6 \cdot \exp(-261/400) \cdot \sin(1479/2000))/25, - (153 \cdot \cos(187/250) \cdot \exp(-33/50))/80 - (6 \cdot \exp(-33/50) \cdot \sin(187/250))/25, - (153 \cdot \cos(1513/2000) \cdot \exp(-267/400))/80 - (6 \cdot \exp(-267/400) \cdot \sin(1513/2000))/25, - (153 \cdot \cos(153/200) \cdot \exp(-27/40))/80 - (6 \cdot \exp(-27/40) \cdot \sin(153/200))/25, - (153 \cdot \cos(1547/2000) \cdot \exp(-273/400))/80 - (6 \cdot \exp(-273/400) \cdot \sin(1547/2000))/25, - (153 \cdot \cos(391/500) \cdot \exp(-69/100))/80 - (6 \cdot \exp(-69/100) \cdot \sin(391/500))/25, - (153 \cdot \cos(1581/2000) \cdot \exp(-279/400))/80 - (6 \cdot \exp(-279/400) \cdot \sin(1581/2000))/25, - (153 \cdot \cos(799/1000) \cdot \exp(-141/200))/80 - (6 \cdot \exp(-141/200) \cdot \sin(799/1000))/25, - (153 \cdot \cos(323/400) \cdot \exp(-57/80))/80 - (6 \cdot \exp(-57/80) \cdot \sin(323/400))/25, - (153 \cdot \cos(102/125) \cdot \exp(-18/25))/80 - (6 \cdot \exp(-18/25) \cdot \sin(102/125))/25, - (153 \cdot \cos(1649/2000) \cdot \exp(-291/400))/80 - (6 \cdot \exp(-291/400) \cdot \sin(1649/2000))/25, - (153 \cdot \cos(833/1000) \cdot \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 - (6 \cdot \exp(-81/100) \cdot \sin(459/500))/25, - (153 \cdot \cos(1853/2000) \cdot \exp(-327/400))/80 - (6 \cdot \exp(-327/400) \cdot \sin(1853/2000))/25, - (153 \cdot \cos(187/200) \cdot \exp(-33/40))/80 - (6 \cdot \exp(-33/40) \cdot \sin(187/200))/25, - (153 \cdot \cos(1887/2000) \cdot \exp(-333/400))/80 - (6 \cdot \exp(-333/400) \cdot \sin(1887/2000))/25, - (153 \cdot \cos(119/125) \cdot \exp(-21/25))/80 - (6 \cdot \exp(-21/25) \cdot \sin(119/125))/25, - (153 \cdot \cos(1921/2000) \cdot \exp(-339/400))/80 - (6 \cdot \exp(-339/400) \cdot \sin(1921/2000))/25, - (153 \cdot \cos(969/1000) \cdot \exp(-171/200))/80 - (6 \cdot \exp(-171/200) \cdot \sin(969/1000))/25, - (153 \cdot \cos(391/400) \cdot \exp(-69/80))/80 - (6 \cdot \exp(-$

$69/80) * \sin(391/400)) / 25, - (153 * \cos(493/500) * \exp(-87/100)) / 80$   
 $- (6 * \exp(-87/100) * \sin(493/500)) / 25, -$   
 $(153 * \cos(1989/2000) * \exp(-351/400)) / 80 - (6 * \exp(-$   
 $351/400) * \sin(1989/2000)) / 25, - (153 * \cos(1003/1000) * \exp(-$   
 $177/200)) / 80 - (6 * \exp(-177/200) * \sin(1003/1000)) / 25, -$   
 $(153 * \cos(2023/2000) * \exp(-357/400)) / 80 - (6 * \exp(-$   
 $357/400) * \sin(2023/2000)) / 25, - (153 * \cos(51/50) * \exp(-9/10)) / 80$   
 $- (6 * \exp(-9/10) * \sin(51/50)) / 25, - (153 * \cos(2057/2000) * \exp(-$   
 $363/400)) / 80 - (6 * \exp(-363/400) * \sin(2057/2000)) / 25, -$   
 $(153 * \cos(1037/1000) * \exp(-183/200)) / 80 - (6 * \exp(-$   
 $183/200) * \sin(1037/1000)) / 25, - (153 * \cos(2091/2000) * \exp(-$   
 $369/400)) / 80 - (6 * \exp(-369/400) * \sin(2091/2000)) / 25, -$   
 $(153 * \cos(527/500) * \exp(-93/100)) / 80 - (6 * \exp(-$   
 $93/100) * \sin(527/500)) / 25, - (153 * \cos(17/16) * \exp(-15/16)) / 80 -$   
 $(6 * \exp(-15/16) * \sin(17/16)) / 25, - (153 * \cos(1071/1000) * \exp(-$   
 $189/200)) / 80 - (6 * \exp(-189/200) * \sin(1071/1000)) / 25, -$   
 $(153 * \cos(2159/2000) * \exp(-381/400)) / 80 - (6 * \exp(-$   
 $381/400) * \sin(2159/2000)) / 25, - (153 * \cos(136/125) * \exp(-$   
 $24/25)) / 80 - (6 * \exp(-24/25) * \sin(136/125)) / 25, -$   
 $(153 * \cos(2193/2000) * \exp(-387/400)) / 80 - (6 * \exp(-$   
 $387/400) * \sin(2193/2000)) / 25, - (153 * \cos(221/200) * \exp(-$   
 $39/40)) / 80 - (6 * \exp(-39/40) * \sin(221/200)) / 25, -$   
 $(153 * \cos(2227/2000) * \exp(-393/400)) / 80 - (6 * \exp(-$   
 $393/400) * \sin(2227/2000)) / 25, - (153 * \cos(561/500) * \exp(-$   
 $99/100)) / 80 - (6 * \exp(-99/100) * \sin(561/500)) / 25, -$   
 $(153 * \cos(2261/2000) * \exp(-399/400)) / 80 - (6 * \exp(-$   
 $399/400) * \sin(2261/2000)) / 25, - (153 * \cos(1139/1000) * \exp(-$   
 $201/200)) / 80 - (6 * \exp(-201/200) * \sin(1139/1000)) / 25, -$   
 $(153 * \cos(459/400) * \exp(-81/80)) / 80 - (6 * \exp(-$   
 $81/80) * \sin(459/400)) / 25, - (153 * \cos(289/250) * \exp(-51/50)) / 80 -$   
 $(6 * \exp(-51/50) * \sin(289/250)) / 25, - (153 * \cos(2329/2000) * \exp(-$   
 $411/400)) / 80 - (6 * \exp(-411/400) * \sin(2329/2000)) / 25, -$   
 $(153 * \cos(1173/1000) * \exp(-207/200)) / 80 - (6 * \exp(-$   
 $207/200) * \sin(1173/1000)) / 25, - (153 * \cos(2363/2000) * \exp(-$   
 $417/400)) / 80 - (6 * \exp(-417/400) * \sin(2363/2000)) / 25, -$   
 $(153 * \cos(119/100) * \exp(-21/20)) / 80 - (6 * \exp(-$   
 $21/20) * \sin(119/100)) / 25, - (153 * \cos(2397/2000) * \exp(-$   
 $423/400)) / 80 - (6 * \exp(-423/400) * \sin(2397/2000)) / 25, -$   
 $(153 * \cos(1207/1000) * \exp(-213/200)) / 80 - (6 * \exp(-$   
 $213/200) * \sin(1207/1000)) / 25, - (153 * \cos(2431/2000) * \exp(-$   
 $429/400)) / 80 - (6 * \exp(-429/400) * \sin(2431/2000)) / 25, -$   
 $(153 * \cos(153/125) * \exp(-27/25)) / 80 - (6 * \exp(-$   
 $27/25) * \sin(153/125)) / 25, - (153 * \cos(493/400) * \exp(-87/80)) / 80 -$   
 $(6 * \exp(-87/80) * \sin(493/400)) / 25, - (153 * \cos(1241/1000) * \exp(-$   
 $219/200)) / 80 - (6 * \exp(-219/200) * \sin(1241/1000)) / 25, -$   
 $(153 * \cos(2499/2000) * \exp(-441/400)) / 80 - (6 * \exp(-$   
 $441/400) * \sin(2499/2000)) / 25, - (153 * \cos(629/500) * \exp(-$   
 $111/100)) / 80 - (6 * \exp(-111/100) * \sin(629/500)) / 25, -$   
 $(153 * \cos(2533/2000) * \exp(-447/400)) / 80 - (6 * \exp(-$   
 $447/400) * \sin(2533/2000)) / 25, - (153 * \cos(51/40) * \exp(-9/8)) / 80 -$   
 $(6 * \exp(-9/8) * \sin(51/40)) / 25, - (153 * \cos(2567/2000) * \exp(-$

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

(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(-

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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]

```

>>

### QUESTION 3

commandwindow

```
clc
clear
syms x
y=5*(sin(5*x))^5
xn=(0)
xnn=(pi)
a=y^2
v=pi*int(a)
b=subs(v,xn)
d=subs(v,xnn)
c=(d-b)
```

ANSWERS...

y =

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

xn =

0

xnn =

3.1416

a =

$25*\sin(5*x)^{10}$

v =

$$\pi \left( \frac{1575x}{256} - \frac{525 \sin(10x)}{512} + \frac{75 \sin(20x)}{256} - \frac{75 \sin(30x)}{1024} + \frac{25 \sin(40x)}{2048} - \frac{\sin(50x)}{1024} \right)$$

b =

0

d =

$$\frac{1575\pi^2}{256}$$

c =

$$\frac{1575\pi^2}{256}$$

>>