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Mechanical Engineering
16/ENG06/059
ENG 281

QUESTION 4a

Program on m-file

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

Command window

A =

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

b =

-4

2

6

4

x =

4.0000

-0.0000

2.0000

6.0000

QUESTION 4b

Prograam on m-file

```
commandwindow
clear
clc
close all
syms t
d=1.5*exp(-0.75*t)*sin(0.85*t)+0.375*t
tn=[0:0.01:2.5]
dn=subs(d,tn)
figure(1)
plot(tn,dn)
xlabel('Time(min)')
ylabel('Distance(m)')
axis tight
grid on
grid minor
v=diff(d)
vn=subs(v,tn)
figure(2)
plot(tn,vn)
xlabel('Time(min)')
ylabel('Velocity(m/min)')
grid on
grid minor
axis tight
a=diff(v)
an=subs(a,tn)
figure(3)
plot(tn,an)
xlabel('Time(min)')
ylabel('Acceleration(m/min^2)')
grid on
grid minor
axis tight
figure(4)
plot(tn,dn,tn,vn,tn,an)
xlabel('Time(min)')
ylabel('Variable')
axis tight
grid on
grid minor
legend('Distance(m)','Velocity(m/min)','Acceleration(m/min^2)')
```

Command window

```
d =

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



tn =

  Columns 1 through 7

        0    0.0100    0.0200    0.0300    0.0400    0.0500    0.0600

  Columns 8 through 14

    0.0700    0.0800    0.0900    0.1000    0.1100    0.1200    0.1300

  Columns 15 through 21

    0.1400    0.1500    0.1600    0.1700    0.1800    0.1900    0.2000

  Columns 22 through 28

    0.2100    0.2200    0.2300    0.2400    0.2500    0.2600    0.2700

  Columns 29 through 35

    0.2800    0.2900    0.3000    0.3100    0.3200    0.3300    0.3400
```

Columns 36 through 42

0.3500 0.3600 0.3700 0.3800 0.3900 0.4000 0.4100

Columns 43 through 49

0.4200 0.4300 0.4400 0.4500 0.4600 0.4700 0.4800

Columns 50 through 56

0.4900 0.5000 0.5100 0.5200 0.5300 0.5400 0.5500

Columns 57 through 63

0.5600 0.5700 0.5800 0.5900 0.6000 0.6100 0.6200

Columns 64 through 70

0.6300 0.6400 0.6500 0.6600 0.6700 0.6800 0.6900

Columns 71 through 77

0.7000 0.7100 0.7200 0.7300 0.7400 0.7500 0.7600

Columns 78 through 84

0.7700 0.7800 0.7900 0.8000 0.8100 0.8200 0.8300

Columns 85 through 91

0.8400 0.8500 0.8600 0.8700 0.8800 0.8900 0.9000

Columns 92 through 98

0.9100 0.9200 0.9300 0.9400 0.9500 0.9600 0.9700

Columns 99 through 105

0.9800 0.9900 1.0000 1.0100 1.0200 1.0300 1.0400

Columns 106 through 112

1.0500 1.0600 1.0700 1.0800 1.0900 1.1000 1.1100

Columns 113 through 119

1.1200 1.1300 1.1400 1.1500 1.1600 1.1700 1.1800

Columns 120 through 126

1.1900 1.2000 1.2100 1.2200 1.2300 1.2400 1.2500

Columns 127 through 133

1.2600 1.2700 1.2800 1.2900 1.3000 1.3100 1.3200

Columns 134 through 140

1.3300 1.3400 1.3500 1.3600 1.3700 1.3800 1.3900

Columns 141 through 147

1.4000 1.4100 1.4200 1.4300 1.4400 1.4500 1.4600

Columns 148 through 154

1.4700 1.4800 1.4900 1.5000 1.5100 1.5200 1.5300

Columns 155 through 161

1.5400 1.5500 1.5600 1.5700 1.5800 1.5900 1.6000

Columns 162 through 168

1.6100 1.6200 1.6300 1.6400 1.6500 1.6600 1.6700

Columns 169 through 175

1.6800 1.6900 1.7000 1.7100 1.7200 1.7300 1.7400

Columns 176 through 182

1.7500 1.7600 1.7700 1.7800 1.7900 1.8000 1.8100

Columns 183 through 189

1.8200 1.8300 1.8400 1.8500 1.8600 1.8700 1.8800

Columns 190 through 196

1.8900 1.9000 1.9100 1.9200 1.9300 1.9400 1.9500

Columns 197 through 203

1.9600 1.9700 1.9800 1.9900 2.0000 2.0100 2.0200

Columns 204 through 210

2.0300 2.0400 2.0500 2.0600 2.0700 2.0800 2.0900

Columns 211 through 217

2.1000 2.1100 2.1200 2.1300 2.1400 2.1500 2.1600

Columns 218 through 224

2.1700 2.1800 2.1900 2.2000 2.2100 2.2200 2.2300

Columns 225 through 231

2.2400 2.2500 2.2600 2.2700 2.2800 2.2900 2.3000

Columns 232 through 238

2.3100 2.3200 2.3300 2.3400 2.3500 2.3600 2.3700

Columns 239 through 245

2.3800 2.3900 2.4000 2.4100 2.4200 2.4300 2.4400

Columns 246 through 251

2.4500 2.4600 2.4700 2.4800 2.4900 2.5000

dn =

[0, (3*exp(-3/400)*sin(17/2000))/2 + 3/800, (3*exp(-3/200)*sin(17/1000))/2 + 3/400, (3*exp(-9/400)*sin(51/2000))/2 + 9/800, (3*exp(-3/100)*sin(17/500))/2 + 3/200, (3*exp(-3/80)*sin(17/400))/2 + 3/160, (3*exp(-9/200)*sin(51/1000))/2 + 9/400, (3*exp(-21/400)*sin(119/2000))/2 + 21/800, (3*exp(-3/50)*sin(17/250))/2 + 3/100, (3*exp(-27/400)*sin(153/2000))/2 + 27/800, (3*exp(-3/40)*sin(17/200))/2 + 3/80, (3*exp(-33/400)*sin(187/2000))/2 + 33/800, (3*exp(-9/100)*sin(51/500))/2 + 9/200, (3*exp(-39/400)*sin(221/2000))/2 + 39/800, (3*exp(-21/200)*sin(119/1000))/2 + 21/400, (3*exp(-9/80)*sin(51/400))/2 + 9/160, (3*exp(-3/25)*sin(17/125))/2 + 3/50, (3*exp(-51/400)*sin(289/2000))/2 + 51/800, (3*exp(-27/200)*sin(153/1000))/2 + 27/400, (3*exp(-57/400)*sin(323/2000))/2 + 57/800, (3*exp(-3/20)*sin(17/100))/2 + 3/40, (3*exp(-63/400)*sin(357/2000))/2 + 63/800, (3*exp(-33/200)*sin(187/1000))/2 + 33/400, (3*exp(-69/400)*sin(391/2000))/2 + 69/800, (3*exp(-9/50)*sin(51/250))/2 + 9/100, (3*exp(-3/16)*sin(17/80))/2 + 3/32, (3*exp(-39/200)*sin(221/1000))/2 + 39/400, (3*exp(-81/400)*sin(459/2000))/2 + 81/800, (3*exp(-21/100)*sin(119/500))/2 + 21/200, (3*exp(-87/400)*sin(493/2000))/2 + 87/800, (3*exp(-9/40)*sin(51/200))/2 + 9/80, (3*exp(-93/400)*sin(527/2000))/2 + 93/800, (3*exp(-6/25)*sin(34/125))/2 + 3/25, (3*exp(-99/400)*sin(561/2000))/2 + 99/800, (3*exp(-51/200)*sin(289/1000))/2 + 51/400, (3*exp(-21/80)*sin(119/400))/2 + 21/160, (3*exp(-27/100)*sin(153/500))/2 + 27/200, (3*exp(-111/400)*sin(629/2000))/2 + 111/800, (3*exp(-57/200)*sin(323/1000))/2 + 57/400, (3*exp(-117/400)*sin(663/2000))/2 + 117/800, (3*exp(-3/10)*sin(17/50))/2 + 3/20, (3*exp(-123/400)*sin(697/2000))/2 + 123/800, (3*exp(-63/200)*sin(357/1000))/2 + 63/400, (3*exp(-129/400)*sin(731/2000))/2 + 129/800, (3*exp(-33/100)*sin(187/500))/2 + 33/200, (3*exp(-27/80)*sin(153/400))/2 + 27/160, (3*exp(-69/200)*sin(391/1000))/2 + 69/400, (3*exp(-141/400)*sin(799/2000))/2 + 141/800, (3*exp(-9/25)*sin(51/125))/2 + 9/50, (3*exp(-147/400)*sin(833/2000))/2 + 147/800, (3*exp(-3/8)*sin(17/40))/2 + 3/16, (3*exp(-153/400)*sin(867/2000))/2 + 153/800, (3*exp(-39/100)*sin(221/500))/2 + 39/200, (3*exp(-159/400)*sin(901/2000))/2 + 159/800, (3*exp(-81/200)*sin(459/1000))/2 + 81/400, (3*exp(-

33/80)*sin(187/400))/2 + 33/160, (3*exp(-21/50)*sin(119/250))/2 + 21/100, (3*exp(-
171/400)*sin(969/2000))/2 + 171/800, (3*exp(-87/200)*sin(493/1000))/2 + 87/400, (3*exp(-
177/400)*sin(1003/2000))/2 + 177/800, (3*exp(-9/20)*sin(51/100))/2 + 9/40, (3*exp(-
183/400)*sin(1037/2000))/2 + 183/800, (3*exp(-93/200)*sin(527/1000))/2 + 93/400, (3*exp(-
189/400)*sin(1071/2000))/2 + 189/800, (3*exp(-12/25)*sin(68/125))/2 + 6/25, (3*exp(-
39/80)*sin(221/400))/2 + 39/160, (3*exp(-99/200)*sin(561/1000))/2 + 99/400, (3*exp(-
201/400)*sin(1139/2000))/2 + 201/800, (3*exp(-51/100)*sin(289/500))/2 + 51/200, (3*exp(-
207/400)*sin(1173/2000))/2 + 207/800, (3*exp(-21/40)*sin(119/200))/2 + 21/80, (3*exp(-
213/400)*sin(1207/2000))/2 + 213/800, (3*exp(-27/50)*sin(153/250))/2 + 27/100, (3*exp(-
219/400)*sin(1241/2000))/2 + 219/800, (3*exp(-111/200)*sin(629/1000))/2 + 111/400, (3*exp(-
9/16)*sin(51/80))/2 + 9/32, (3*exp(-57/100)*sin(323/500))/2 + 57/200, (3*exp(-
231/400)*sin(1309/2000))/2 + 231/800, (3*exp(-117/200)*sin(663/1000))/2 + 117/400, (3*exp(-
237/400)*sin(1343/2000))/2 + 237/800, (3*exp(-3/5)*sin(17/25))/2 + 3/10, (3*exp(-
243/400)*sin(1377/2000))/2 + 243/800, (3*exp(-123/200)*sin(697/1000))/2 + 123/400, (3*exp(-
249/400)*sin(1411/2000))/2 + 249/800, (3*exp(-63/100)*sin(357/500))/2 + 63/200, (3*exp(-
51/80)*sin(289/400))/2 + 51/160, (3*exp(-129/200)*sin(731/1000))/2 + 129/400, (3*exp(-
261/400)*sin(1479/2000))/2 + 261/800, (3*exp(-33/50)*sin(187/250))/2 + 33/100, (3*exp(-
267/400)*sin(1513/2000))/2 + 267/800, (3*exp(-27/40)*sin(153/200))/2 + 27/80, (3*exp(-
273/400)*sin(1547/2000))/2 + 273/800, (3*exp(-69/100)*sin(391/500))/2 + 69/200, (3*exp(-
279/400)*sin(1581/2000))/2 + 279/800, (3*exp(-141/200)*sin(799/1000))/2 + 141/400, (3*exp(-
57/80)*sin(323/400))/2 + 57/160, (3*exp(-18/25)*sin(102/125))/2 + 9/25, (3*exp(-
291/400)*sin(1649/2000))/2 + 291/800, (3*exp(-147/200)*sin(833/1000))/2 + 147/400, (3*exp(-
297/400)*sin(1683/2000))/2 + 297/800, (3*exp(-3/4)*sin(17/20))/2 + 3/8, (3*exp(-
303/400)*sin(1717/2000))/2 + 303/800, (3*exp(-153/200)*sin(867/1000))/2 + 153/400, (3*exp(-
309/400)*sin(1751/2000))/2 + 309/800, (3*exp(-39/50)*sin(221/250))/2 + 39/100, (3*exp(-
63/80)*sin(357/400))/2 + 63/160, (3*exp(-159/200)*sin(901/1000))/2 + 159/400, (3*exp(-
321/400)*sin(1819/2000))/2 + 321/800, (3*exp(-81/100)*sin(459/500))/2 + 81/200, (3*exp(-
327/400)*sin(1853/2000))/2 + 327/800, (3*exp(-33/40)*sin(187/200))/2 + 33/80, (3*exp(-
333/400)*sin(1887/2000))/2 + 333/800, (3*exp(-21/25)*sin(119/125))/2 + 21/50, (3*exp(-
339/400)*sin(1921/2000))/2 + 339/800, (3*exp(-171/200)*sin(969/1000))/2 + 171/400, (3*exp(-
69/80)*sin(391/400))/2 + 69/160, (3*exp(-87/100)*sin(493/500))/2 + 87/200, (3*exp(-
351/400)*sin(1989/2000))/2 + 351/800, (3*exp(-177/200)*sin(1003/1000))/2 + 177/400, (3*exp(-
357/400)*sin(2023/2000))/2 + 357/800, (3*exp(-9/10)*sin(51/50))/2 + 9/20, (3*exp(-
363/400)*sin(2057/2000))/2 + 363/800, (3*exp(-183/200)*sin(1037/1000))/2 + 183/400, (3*exp(-
369/400)*sin(2091/2000))/2 + 369/800, (3*exp(-93/100)*sin(527/500))/2 + 93/200, (3*exp(-
15/16)*sin(17/16))/2 + 15/32, (3*exp(-189/200)*sin(1071/1000))/2 + 189/400, (3*exp(-
381/400)*sin(2159/2000))/2 + 381/800, (3*exp(-24/25)*sin(136/125))/2 + 12/25, (3*exp(-
387/400)*sin(2193/2000))/2 + 387/800, (3*exp(-39/40)*sin(221/200))/2 + 39/80, (3*exp(-
393/400)*sin(2227/2000))/2 + 393/800, (3*exp(-99/100)*sin(561/500))/2 + 99/200, (3*exp(-
399/400)*sin(2261/2000))/2 + 399/800, (3*exp(-201/200)*sin(1139/1000))/2 + 201/400, (3*exp(-
81/80)*sin(459/400))/2 + 81/160, (3*exp(-51/50)*sin(289/250))/2 + 51/100, (3*exp(-
411/400)*sin(2329/2000))/2 + 411/800, (3*exp(-207/200)*sin(1173/1000))/2 + 207/400, (3*exp(-
417/400)*sin(2363/2000))/2 + 417/800, (3*exp(-21/20)*sin(119/100))/2 + 21/40, (3*exp(-
423/400)*sin(2397/2000))/2 + 423/800, (3*exp(-213/200)*sin(1207/1000))/2 + 213/400, (3*exp(-

429/400)*sin(2431/2000))/2 + 429/800, (3*exp(-27/25)*sin(153/125))/2 + 27/50, (3*exp(-
87/80)*sin(493/400))/2 + 87/160, (3*exp(-219/200)*sin(1241/1000))/2 + 219/400, (3*exp(-
441/400)*sin(2499/2000))/2 + 441/800, (3*exp(-111/100)*sin(629/500))/2 + 111/200, (3*exp(-
447/400)*sin(2533/2000))/2 + 447/800, (3*exp(-9/8)*sin(51/40))/2 + 9/16, (3*exp(-
453/400)*sin(2567/2000))/2 + 453/800, (3*exp(-57/50)*sin(323/250))/2 + 57/100, (3*exp(-
459/400)*sin(2601/2000))/2 + 459/800, (3*exp(-231/200)*sin(1309/1000))/2 + 231/400, (3*exp(-
93/80)*sin(527/400))/2 + 93/160, (3*exp(-117/100)*sin(663/500))/2 + 117/200, (3*exp(-
471/400)*sin(2669/2000))/2 + 471/800, (3*exp(-237/200)*sin(1343/1000))/2 + 237/400, (3*exp(-
477/400)*sin(2703/2000))/2 + 477/800, (3*exp(-6/5)*sin(34/25))/2 + 3/5, (3*exp(-
483/400)*sin(2737/2000))/2 + 483/800, (3*exp(-243/200)*sin(1377/1000))/2 + 243/400, (3*exp(-
489/400)*sin(2771/2000))/2 + 489/800, (3*exp(-123/100)*sin(697/500))/2 + 123/200, (3*exp(-
99/80)*sin(561/400))/2 + 99/160, (3*exp(-249/200)*sin(1411/1000))/2 + 249/400, (3*exp(-
501/400)*sin(2839/2000))/2 + 501/800, (3*exp(-63/50)*sin(357/250))/2 + 63/100, (3*exp(-
507/400)*sin(2873/2000))/2 + 507/800, (3*exp(-51/40)*sin(289/200))/2 + 51/80, (3*exp(-
513/400)*sin(2907/2000))/2 + 513/800, (3*exp(-129/100)*sin(731/500))/2 + 129/200, (3*exp(-
519/400)*sin(2941/2000))/2 + 519/800, (3*exp(-261/200)*sin(1479/1000))/2 + 261/400, (3*exp(-
21/16)*sin(119/80))/2 + 21/32, (3*exp(-33/25)*sin(187/125))/2 + 33/50, (3*exp(-
531/400)*sin(3009/2000))/2 + 531/800, (3*exp(-267/200)*sin(1513/1000))/2 + 267/400, (3*exp(-
537/400)*sin(3043/2000))/2 + 537/800, (3*exp(-27/20)*sin(153/100))/2 + 27/40, (3*exp(-
543/400)*sin(3077/2000))/2 + 543/800, (3*exp(-273/200)*sin(1547/1000))/2 + 273/400, (3*exp(-
549/400)*sin(3111/2000))/2 + 549/800, (3*exp(-69/50)*sin(391/250))/2 + 69/100, (3*exp(-
111/80)*sin(629/400))/2 + 111/160, (3*exp(-279/200)*sin(1581/1000))/2 + 279/400, (3*exp(-
561/400)*sin(3179/2000))/2 + 561/800, (3*exp(-141/100)*sin(799/500))/2 + 141/200, (3*exp(-
567/400)*sin(3213/2000))/2 + 567/800, (3*exp(-57/40)*sin(323/200))/2 + 57/80, (3*exp(-
573/400)*sin(3247/2000))/2 + 573/800, (3*exp(-36/25)*sin(204/125))/2 + 18/25, (3*exp(-
579/400)*sin(3281/2000))/2 + 579/800, (3*exp(-291/200)*sin(1649/1000))/2 + 291/400, (3*exp(-
117/80)*sin(663/400))/2 + 117/160, (3*exp(-147/100)*sin(833/500))/2 + 147/200, (3*exp(-
591/400)*sin(3349/2000))/2 + 591/800, (3*exp(-297/200)*sin(1683/1000))/2 + 297/400, (3*exp(-
597/400)*sin(3383/2000))/2 + 597/800, (3*exp(-3/2)*sin(17/10))/2 + 3/4, (3*exp(-
603/400)*sin(3417/2000))/2 + 603/800, (3*exp(-303/200)*sin(1717/1000))/2 + 303/400, (3*exp(-
609/400)*sin(3451/2000))/2 + 609/800, (3*exp(-153/100)*sin(867/500))/2 + 153/200, (3*exp(-
123/80)*sin(697/400))/2 + 123/160, (3*exp(-309/200)*sin(1751/1000))/2 + 309/400, (3*exp(-
621/400)*sin(3519/2000))/2 + 621/800, (3*exp(-39/25)*sin(221/125))/2 + 39/50, (3*exp(-
627/400)*sin(3553/2000))/2 + 627/800, (3*exp(-63/40)*sin(357/200))/2 + 63/80, (3*exp(-
633/400)*sin(3587/2000))/2 + 633/800, (3*exp(-159/100)*sin(901/500))/2 + 159/200, (3*exp(-
639/400)*sin(3621/2000))/2 + 639/800, (3*exp(-321/200)*sin(1819/1000))/2 + 321/400, (3*exp(-
129/80)*sin(731/400))/2 + 129/160, (3*exp(-81/50)*sin(459/250))/2 + 81/100, (3*exp(-
651/400)*sin(3689/2000))/2 + 651/800, (3*exp(-327/200)*sin(1853/1000))/2 + 327/400, (3*exp(-
657/400)*sin(3723/2000))/2 + 657/800, (3*exp(-33/20)*sin(187/100))/2 + 33/40, (3*exp(-
663/400)*sin(3757/2000))/2 + 663/800, (3*exp(-333/200)*sin(1887/1000))/2 + 333/400, (3*exp(-
669/400)*sin(3791/2000))/2 + 669/800, (3*exp(-42/25)*sin(238/125))/2 + 21/25, (3*exp(-
27/16)*sin(153/80))/2 + 27/32, (3*exp(-339/200)*sin(1921/1000))/2 + 339/400, (3*exp(-
681/400)*sin(3859/2000))/2 + 681/800, (3*exp(-171/100)*sin(969/500))/2 + 171/200, (3*exp(-
687/400)*sin(3893/2000))/2 + 687/800, (3*exp(-69/40)*sin(391/200))/2 + 69/80, (3*exp(-

693/400)*sin(3927/2000))/2 + 693/800, (3*exp(-87/50)*sin(493/250))/2 + 87/100, (3*exp(-699/400)*sin(3961/2000))/2 + 699/800, (3*exp(-351/200)*sin(1989/1000))/2 + 351/400, (3*exp(-141/80)*sin(799/400))/2 + 141/160, (3*exp(-177/100)*sin(1003/500))/2 + 177/200, (3*exp(-711/400)*sin(4029/2000))/2 + 711/800, (3*exp(-357/200)*sin(2023/1000))/2 + 357/400, (3*exp(-717/400)*sin(4063/2000))/2 + 717/800, (3*exp(-9/5)*sin(51/25))/2 + 9/10, (3*exp(-723/400)*sin(4097/2000))/2 + 723/800, (3*exp(-363/200)*sin(2057/1000))/2 + 363/400, (3*exp(-729/400)*sin(4131/2000))/2 + 729/800, (3*exp(-183/100)*sin(1037/500))/2 + 183/200, (3*exp(-147/80)*sin(833/400))/2 + 147/160, (3*exp(-369/200)*sin(2091/1000))/2 + 369/400, (3*exp(-741/400)*sin(4199/2000))/2 + 741/800, (3*exp(-93/50)*sin(527/250))/2 + 93/100, (3*exp(-747/400)*sin(4233/2000))/2 + 747/800, (3*exp(-15/8)*sin(17/8))/2 + 15/16]

v =

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

vn =

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

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

(51*cos(1309/2000)*exp(-231/400))/40 - (9*exp(-231/400)*sin(1309/2000))/8 + 3/8,
(51*cos(663/1000)*exp(-117/200))/40 - (9*exp(-117/200)*sin(663/1000))/8 + 3/8,
(51*cos(1343/2000)*exp(-237/400))/40 - (9*exp(-237/400)*sin(1343/2000))/8 + 3/8,
(51*cos(17/25)*exp(-3/5))/40 - (9*exp(-3/5)*sin(17/25))/8 + 3/8, (51*cos(1377/2000)*exp(-
243/400))/40 - (9*exp(-243/400)*sin(1377/2000))/8 + 3/8, (51*cos(697/1000)*exp(-123/200))/40 -
(9*exp(-123/200)*sin(697/1000))/8 + 3/8, (51*cos(1411/2000)*exp(-249/400))/40 - (9*exp(-
249/400)*sin(1411/2000))/8 + 3/8, (51*cos(357/500)*exp(-63/100))/40 - (9*exp(-
63/100)*sin(357/500))/8 + 3/8, (51*cos(289/400)*exp(-51/80))/40 - (9*exp(-51/80)*sin(289/400))/8 +
3/8, (51*cos(731/1000)*exp(-129/200))/40 - (9*exp(-129/200)*sin(731/1000))/8 + 3/8,
(51*cos(1479/2000)*exp(-261/400))/40 - (9*exp(-261/400)*sin(1479/2000))/8 + 3/8,
(51*cos(187/250)*exp(-33/50))/40 - (9*exp(-33/50)*sin(187/250))/8 + 3/8, (51*cos(1513/2000)*exp(-
267/400))/40 - (9*exp(-267/400)*sin(1513/2000))/8 + 3/8, (51*cos(153/200)*exp(-27/40))/40 - (9*exp(-
27/40)*sin(153/200))/8 + 3/8, (51*cos(1547/2000)*exp(-273/400))/40 - (9*exp(-
273/400)*sin(1547/2000))/8 + 3/8, (51*cos(391/500)*exp(-69/100))/40 - (9*exp(-
69/100)*sin(391/500))/8 + 3/8, (51*cos(1581/2000)*exp(-279/400))/40 - (9*exp(-
279/400)*sin(1581/2000))/8 + 3/8, (51*cos(799/1000)*exp(-141/200))/40 - (9*exp(-
141/200)*sin(799/1000))/8 + 3/8, (51*cos(323/400)*exp(-57/80))/40 - (9*exp(-57/80)*sin(323/400))/8
+ 3/8, (51*cos(102/125)*exp(-18/25))/40 - (9*exp(-18/25)*sin(102/125))/8 + 3/8,
(51*cos(1649/2000)*exp(-291/400))/40 - (9*exp(-291/400)*sin(1649/2000))/8 + 3/8,
(51*cos(833/1000)*exp(-147/200))/40 - (9*exp(-147/200)*sin(833/1000))/8 + 3/8,
(51*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,
(51*cos(2091/2000)*exp(-369/400))/40 - (9*exp(-369/400)*sin(2091/2000))/8 + 3/8,
(51*cos(527/500)*exp(-93/100))/40 - (9*exp(-93/100)*sin(527/500))/8 + 3/8, (51*cos(17/16)*exp(-
15/16))/40 - (9*exp(-15/16)*sin(17/16))/8 + 3/8, (51*cos(1071/1000)*exp(-189/200))/40 - (9*exp(-

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

[-153/80, - (153*cos(17/2000)*exp(-3/400))/80 - (6*exp(-3/400)*sin(17/2000))/25, - (153*cos(17/1000)*exp(-3/200))/80 - (6*exp(-3/200)*sin(17/1000))/25, - (153*cos(51/2000)*exp(-9/400))/80 - (6*exp(-9/400)*sin(51/2000))/25, - (153*cos(17/500)*exp(-3/100))/80 - (6*exp(-3/100)*sin(17/500))/25, - (153*cos(17/400)*exp(-3/80))/80 - (6*exp(-3/80)*sin(17/400))/25, - (153*cos(51/1000)*exp(-9/200))/80 - (6*exp(-9/200)*sin(51/1000))/25, - (153*cos(119/2000)*exp(-21/400))/80 - (6*exp(-21/400)*sin(119/2000))/25, - (153*cos(17/250)*exp(-3/50))/80 - (6*exp(-

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

(153*cos(527/1000)*exp(-93/200))/80 - (6*exp(-93/200)*sin(527/1000))/25, -
(153*cos(1071/2000)*exp(-189/400))/80 - (6*exp(-189/400)*sin(1071/2000))/25, -
(153*cos(68/125)*exp(-12/25))/80 - (6*exp(-12/25)*sin(68/125))/25, - (153*cos(221/400)*exp(-
39/80))/80 - (6*exp(-39/80)*sin(221/400))/25, - (153*cos(561/1000)*exp(-99/200))/80 - (6*exp(-
99/200)*sin(561/1000))/25, - (153*cos(1139/2000)*exp(-201/400))/80 - (6*exp(-
201/400)*sin(1139/2000))/25, - (153*cos(289/500)*exp(-51/100))/80 - (6*exp(-
51/100)*sin(289/500))/25, - (153*cos(1173/2000)*exp(-207/400))/80 - (6*exp(-
207/400)*sin(1173/2000))/25, - (153*cos(119/200)*exp(-21/40))/80 - (6*exp(-21/40)*sin(119/200))/25,
- (153*cos(1207/2000)*exp(-213/400))/80 - (6*exp(-213/400)*sin(1207/2000))/25, -
(153*cos(153/250)*exp(-27/50))/80 - (6*exp(-27/50)*sin(153/250))/25, - (153*cos(1241/2000)*exp(-
219/400))/80 - (6*exp(-219/400)*sin(1241/2000))/25, - (153*cos(629/1000)*exp(-111/200))/80 -
(6*exp(-111/200)*sin(629/1000))/25, - (153*cos(51/80)*exp(-9/16))/80 - (6*exp(-9/16)*sin(51/80))/25,
- (153*cos(323/500)*exp(-57/100))/80 - (6*exp(-57/100)*sin(323/500))/25, -
(153*cos(1309/2000)*exp(-231/400))/80 - (6*exp(-231/400)*sin(1309/2000))/25, -
(153*cos(663/1000)*exp(-117/200))/80 - (6*exp(-117/200)*sin(663/1000))/25, -
(153*cos(1343/2000)*exp(-237/400))/80 - (6*exp(-237/400)*sin(1343/2000))/25, -
(153*cos(17/25)*exp(-3/5))/80 - (6*exp(-3/5)*sin(17/25))/25, - (153*cos(1377/2000)*exp(-
243/400))/80 - (6*exp(-243/400)*sin(1377/2000))/25, - (153*cos(697/1000)*exp(-123/200))/80 -
(6*exp(-123/200)*sin(697/1000))/25, - (153*cos(1411/2000)*exp(-249/400))/80 - (6*exp(-
249/400)*sin(1411/2000))/25, - (153*cos(357/500)*exp(-63/100))/80 - (6*exp(-
63/100)*sin(357/500))/25, - (153*cos(289/400)*exp(-51/80))/80 - (6*exp(-51/80)*sin(289/400))/25, -
(153*cos(731/1000)*exp(-129/200))/80 - (6*exp(-129/200)*sin(731/1000))/25, -
(153*cos(1479/2000)*exp(-261/400))/80 - (6*exp(-261/400)*sin(1479/2000))/25, -
(153*cos(187/250)*exp(-33/50))/80 - (6*exp(-33/50)*sin(187/250))/25, - (153*cos(1513/2000)*exp(-
267/400))/80 - (6*exp(-267/400)*sin(1513/2000))/25, - (153*cos(153/200)*exp(-27/40))/80 - (6*exp(-
27/40)*sin(153/200))/25, - (153*cos(1547/2000)*exp(-273/400))/80 - (6*exp(-
273/400)*sin(1547/2000))/25, - (153*cos(391/500)*exp(-69/100))/80 - (6*exp(-
69/100)*sin(391/500))/25, - (153*cos(1581/2000)*exp(-279/400))/80 - (6*exp(-
279/400)*sin(1581/2000))/25, - (153*cos(799/1000)*exp(-141/200))/80 - (6*exp(-
141/200)*sin(799/1000))/25, - (153*cos(323/400)*exp(-57/80))/80 - (6*exp(-57/80)*sin(323/400))/25, -
(153*cos(102/125)*exp(-18/25))/80 - (6*exp(-18/25)*sin(102/125))/25, - (153*cos(1649/2000)*exp(-
291/400))/80 - (6*exp(-291/400)*sin(1649/2000))/25, - (153*cos(833/1000)*exp(-147/200))/80 -
(6*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]

QUESTION 4c

Program on m-file

```
commandwindow
clear
clc
close all
syms x
y=5*sin(5*x)^5
yint=int(y,0,22/7)
format rat
```

Command window

y =

5*sin(5*x)^5

yint =

-((cos(110/7) - 1)^3*(9*cos(110/7) + (3*cos(220/7))/2 + 19/2))/15