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**DEPARTMENT: ELECTRICAL ENGINEERING**

**MATRIC NUMBER: 16/ENGO4/045**

**(B)**

```
commandwindow
clear
clc
close all
syms t
d = 1.5* exp(-0.75* t) * sin(0.85*t) + 0.375*t
```

d =

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

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

```
tn =
```

Columns 1 through 8

```
0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600 0.0700
```

Columns 9 through 16

```
0.0800 0.0900 0.1000 0.1100 0.1200 0.1300 0.1400 0.1500
```

Columns 17 through 24

```
0.1600 0.1700 0.1800 0.1900 0.2000 0.2100 0.2200 0.2300
```

Columns 25 through 32

```
0.2400 0.2500 0.2600 0.2700 0.2800 0.2900 0.3000 0.3100
```

Columns 33 through 40

0.3200 0.3300 0.3400 0.3500 0.3600 0.3700 0.3800 0.3900

Columns 41 through 48

0.4000 0.4100 0.4200 0.4300 0.4400 0.4500 0.4600 0.4700

Columns 49 through 56

0.4800 0.4900 0.5000 0.5100 0.5200 0.5300 0.5400 0.5500

Columns 57 through 64

0.5600 0.5700 0.5800 0.5900 0.6000 0.6100 0.6200 0.6300

Columns 65 through 72

0.6400 0.6500 0.6600 0.6700 0.6800 0.6900 0.7000 0.7100

Columns 73 through 80

0.7200 0.7300 0.7400 0.7500 0.7600 0.7700 0.7800 0.7900

Columns 81 through 88

0.8000 0.8100 0.8200 0.8300 0.8400 0.8500 0.8600 0.8700

Columns 89 through 96

0.8800 0.8900 0.9000 0.9100 0.9200 0.9300 0.9400 0.9500

Columns 97 through 104

0.9600 0.9700 0.9800 0.9900 1.0000 1.0100 1.0200 1.0300

Columns 105 through 112

1.0400 1.0500 1.0600 1.0700 1.0800 1.0900 1.1000 1.1100

Columns 113 through 120

1.1200 1.1300 1.1400 1.1500 1.1600 1.1700 1.1800 1.1900

Columns 121 through 128

1.2000 1.2100 1.2200 1.2300 1.2400 1.2500 1.2600 1.2700

Columns 129 through 136

1.2800 1.2900 1.3000 1.3100 1.3200 1.3300 1.3400 1.3500

Columns 137 through 144

1.3600 1.3700 1.3800 1.3900 1.4000 1.4100 1.4200 1.4300

Columns 145 through 152

1.4400 1.4500 1.4600 1.4700 1.4800 1.4900 1.5000 1.5100

Columns 153 through 160

1.5200 1.5300 1.5400 1.5500 1.5600 1.5700 1.5800 1.5900

Columns 161 through 168

1.6000 1.6100 1.6200 1.6300 1.6400 1.6500 1.6600 1.6700

Columns 169 through 176

1.6800 1.6900 1.7000 1.7100 1.7200 1.7300 1.7400 1.7500

Columns 177 through 184

1.7600 1.7700 1.7800 1.7900 1.8000 1.8100 1.8200 1.8300

Columns 185 through 192

1.8400 1.8500 1.8600 1.8700 1.8800 1.8900 1.9000 1.9100

Columns 193 through 200

1.9200 1.9300 1.9400 1.9500 1.9600 1.9700 1.9800 1.9900

Columns 201 through 208

2.0000 2.0100 2.0200 2.0300 2.0400 2.0500 2.0600 2.0700

Columns 209 through 216

2.0800 2.0900 2.1000 2.1100 2.1200 2.1300 2.1400 2.1500

Columns 217 through 224

2.1600 2.1700 2.1800 2.1900 2.2000 2.2100 2.2200 2.2300

Columns 225 through 232

2.2400 2.2500 2.2600 2.2700 2.2800 2.2900 2.3000 2.3100

Columns 233 through 240

2.3200 2.3300 2.3400 2.3500 2.3600 2.3700 2.3800 2.3900

Columns 241 through 248

2.4000 2.4100 2.4200 2.4300 2.4400 2.4500 2.4600 2.4700

Columns 249 through 251

2.4800 2.4900 2.5000

v=diff(d)

v =

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

vn= subs(v,tn)

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

$201/400) \cdot \sin(1139/2000))/8 + 3/8, (51 \cdot \cos(289/500) \cdot \exp(-51/100))/40 - (9 \cdot \exp(-51/100) \cdot \sin(289/500))/8 + 3/8, (51 \cdot \cos(1173/2000) \cdot \exp(-207/400))/40 - (9 \cdot \exp(-207/400) \cdot \sin(1173/2000))/8 + 3/8, (51 \cdot \cos(119/200) \cdot \exp(-21/40))/40 - (9 \cdot \exp(-21/40) \cdot \sin(119/200))/8 + 3/8, (51 \cdot \cos(1207/2000) \cdot \exp(-213/400))/40 - (9 \cdot \exp(-213/400) \cdot \sin(1207/2000))/8 + 3/8, (51 \cdot \cos(153/250) \cdot \exp(-27/50))/40 - (9 \cdot \exp(-27/50) \cdot \sin(153/250))/8 + 3/8, (51 \cdot \cos(1241/2000) \cdot \exp(-219/400))/40 - (9 \cdot \exp(-219/400) \cdot \sin(1241/2000))/8 + 3/8, (51 \cdot \cos(629/1000) \cdot \exp(-111/200))/40 - (9 \cdot \exp(-111/200) \cdot \sin(629/1000))/8 + 3/8, (51 \cdot \cos(51/80) \cdot \exp(-9/16))/40 - (9 \cdot \exp(-9/16) \cdot \sin(51/80))/8 + 3/8, (51 \cdot \cos(323/500) \cdot \exp(-57/100))/40 - (9 \cdot \exp(-57/100) \cdot \sin(323/500))/8 + 3/8, (51 \cdot \cos(1309/2000) \cdot \exp(-231/400))/40 - (9 \cdot \exp(-231/400) \cdot \sin(1309/2000))/8 + 3/8, (51 \cdot \cos(663/1000) \cdot \exp(-117/200))/40 - (9 \cdot \exp(-117/200) \cdot \sin(663/1000))/8 + 3/8, (51 \cdot \cos(1343/2000) \cdot \exp(-237/400))/40 - (9 \cdot \exp(-237/400) \cdot \sin(1343/2000))/8 + 3/8, (51 \cdot \cos(17/25) \cdot \exp(-3/5))/40 - (9 \cdot \exp(-3/5) \cdot \sin(17/25))/8 + 3/8, (51 \cdot \cos(1377/2000) \cdot \exp(-243/400))/40 - (9 \cdot \exp(-243/400) \cdot \sin(1377/2000))/8 + 3/8, (51 \cdot \cos(697/1000) \cdot \exp(-123/200))/40 - (9 \cdot \exp(-123/200) \cdot \sin(697/1000))/8 + 3/8, (51 \cdot \cos(1411/2000) \cdot \exp(-249/400))/40 - (9 \cdot \exp(-249/400) \cdot \sin(1411/2000))/8 + 3/8, (51 \cdot \cos(357/500) \cdot \exp(-63/100))/40 - (9 \cdot \exp(-63/100) \cdot \sin(357/500))/8 + 3/8, (51 \cdot \cos(289/400) \cdot \exp(-51/80))/40 - (9 \cdot \exp(-51/80) \cdot \sin(289/400))/8 + 3/8, (51 \cdot \cos(731/1000) \cdot \exp(-129/200))/40 - (9 \cdot \exp(-129/200) \cdot \sin(731/1000))/8 + 3/8, (51 \cdot \cos(1479/2000) \cdot \exp(-261/400))/40 - (9 \cdot \exp(-261/400) \cdot \sin(1479/2000))/8 + 3/8, (51 \cdot \cos(187/250) \cdot \exp(-33/50))/40 - (9 \cdot \exp(-33/50) \cdot \sin(187/250))/8 + 3/8, (51 \cdot \cos(1513/2000) \cdot \exp(-267/400))/40 - (9 \cdot \exp(-267/400) \cdot \sin(1513/2000))/8 + 3/8, (51 \cdot \cos(153/200) \cdot \exp(-27/40))/40 - (9 \cdot \exp(-27/40) \cdot \sin(153/200))/8 + 3/8, (51 \cdot \cos(1547/2000) \cdot \exp(-273/400))/40 - (9 \cdot \exp(-273/400) \cdot \sin(1547/2000))/8 + 3/8, (51 \cdot \cos(391/500) \cdot \exp(-69/100))/40 - (9 \cdot \exp(-69/100) \cdot \sin(391/500))/8 + 3/8, (51 \cdot \cos(1581/2000) \cdot \exp(-279/400))/40 - (9 \cdot \exp(-279/400) \cdot \sin(1581/2000))/8 + 3/8, (51 \cdot \cos(799/1000) \cdot \exp(-141/200))/40 - (9 \cdot \exp(-141/200) \cdot \sin(799/1000))/8 + 3/8, (51 \cdot \cos(323/400) \cdot \exp(-57/80))/40 - (9 \cdot \exp(-57/80) \cdot \sin(323/400))/8 + 3/8, (51 \cdot \cos(102/125) \cdot \exp(-18/25))/40 - (9 \cdot \exp(-18/25) \cdot \sin(102/125))/8 + 3/8, (51 \cdot \cos(1649/2000) \cdot \exp(-291/400))/40 - (9 \cdot \exp(-291/400) \cdot \sin(1649/2000))/8 + 3/8, (51 \cdot \cos(833/1000) \cdot \exp(-147/200))/40 - (9 \cdot \exp(-147/200) \cdot \sin(833/1000))/8 + 3/8, (51 \cdot \cos(1683/2000) \cdot \exp(-297/400))/40 - (9 \cdot \exp(-297/400) \cdot \sin(1683/2000))/8 + 3/8, (51 \cdot \cos(17/20) \cdot \exp(-3/4))/40 - (9 \cdot \exp(-3/4) \cdot \sin(17/20))/8 + 3/8, (51 \cdot \cos(1717/2000) \cdot \exp(-303/400))/40 - (9 \cdot \exp(-303/400) \cdot \sin(1717/2000))/8 + 3/8, (51 \cdot \cos(867/1000) \cdot \exp(-153/200))/40 - (9 \cdot \exp(-153/200) \cdot \sin(867/1000))/8 + 3/8, (51 \cdot \cos(1751/2000) \cdot \exp(-309/400))/40 - (9 \cdot \exp(-309/400) \cdot \sin(1751/2000))/8 + 3/8, (51 \cdot \cos(221/250) \cdot \exp(-39/50))/40 - (9 \cdot \exp(-39/50) \cdot \sin(221/250))/8 + 3/8, (51 \cdot \cos(357/400) \cdot \exp(-63/80))/40 - (9 \cdot \exp(-63/80) \cdot \sin(357/400))/8 + 3/8, (51 \cdot \cos(901/1000) \cdot \exp(-159/200))/40 - (9 \cdot \exp(-159/200) \cdot \sin(901/1000))/8 + 3/8, (51 \cdot \cos(1819/2000) \cdot \exp(-321/400))/40 - (9 \cdot \exp(-321/400) \cdot \sin(1819/2000))/8 + 3/8, (51 \cdot \cos(459/500) \cdot \exp(-81/100))/40 - (9 \cdot \exp(-81/100) \cdot \sin(459/500))/8 + 3/8, (51 \cdot \cos(1853/2000) \cdot \exp(-327/400))/40 - (9 \cdot \exp(-327/400) \cdot \sin(1853/2000))/8 + 3/8, (51 \cdot \cos(187/200) \cdot \exp(-33/40))/40 - (9 \cdot \exp(-33/40) \cdot \sin(187/200))/8 + 3/8, (51 \cdot \cos(1887/2000) \cdot \exp(-333/400))/40 - (9 \cdot \exp(-333/400) \cdot \sin(1887/2000))/8 + 3/8, (51 \cdot \cos(119/125) \cdot \exp(-21/25))/40 - (9 \cdot \exp(-21/25) \cdot \sin(119/125))/8 + 3/8, (51 \cdot \cos(1921/2000) \cdot \exp(-339/400))/40 - (9 \cdot \exp(-339/400) \cdot \sin(1921/2000))/8 + 3/8, (51 \cdot \cos(969/1000) \cdot \exp(-171/200))/40 - (9 \cdot \exp(-171/200) \cdot \sin(969/1000))/8 + 3/8, (51 \cdot \cos(391/400) \cdot \exp(-69/80))/40 - (9 \cdot \exp(-69/80) \cdot \sin(391/400))/8 + 3/8, (51 \cdot \cos(493/500) \cdot \exp(-87/100))/40 - (9 \cdot \exp(-87/100) \cdot \sin(493/500))/8 + 3/8, (51 \cdot \cos(1989/2000) \cdot \exp(-351/400))/40 - (9 \cdot \exp(-351/400) \cdot \sin(1989/2000))/8 + 3/8, (51 \cdot \cos(1003/1000) \cdot \exp(-177/200))/40 - (9 \cdot \exp(-177/200) \cdot \sin(1003/1000))/8 + 3/8, (51 \cdot \cos(2023/2000) \cdot \exp(-357/400))/40 - (9 \cdot \exp(-357/400) \cdot \sin(2023/2000))/8 + 3/8,$

$(51*\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,$

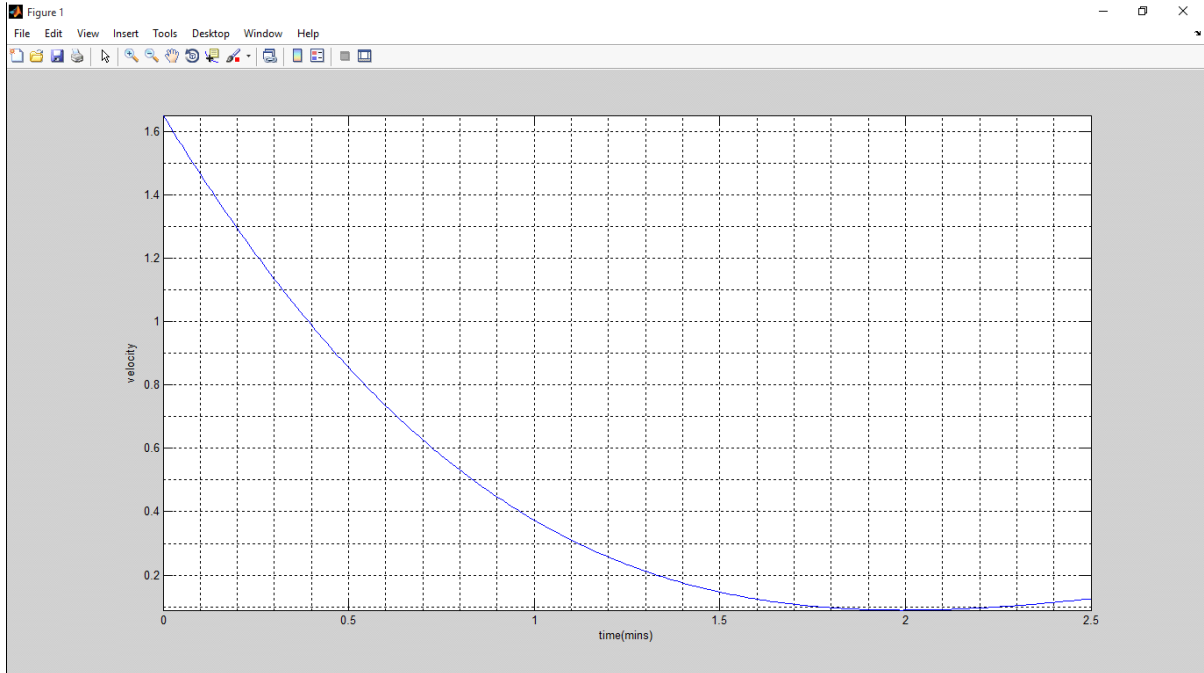
$(51 \cdot \cos(238/125) \cdot \exp(-42/25))/40 - (9 \cdot \exp(-42/25) \cdot \sin(238/125))/8 + 3/8,$   
 $(51 \cdot \cos(153/80) \cdot \exp(-27/16))/40 - (9 \cdot \exp(-27/16) \cdot \sin(153/80))/8 + 3/8,$   
 $(51 \cdot \cos(1921/1000) \cdot \exp(-339/200))/40 - (9 \cdot \exp(-339/200) \cdot \sin(1921/1000))/8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

figure (1)

```

plot(tn,vn)
xlabel('time(mins)')
ylabel('velocity')
axis tight
grid on
grid minor

```



a=diff(v)  
a =

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

an=subs(a,tn)  
an =

$$\begin{aligned} &[-153/80, -(153*\cos(17/2000)*\exp(-3/400))/80 - (6*\exp(-3/400)*\sin(17/2000))/25, - \\ &(153*\cos(17/1000)*\exp(-3/200))/80 - (6*\exp(-3/200)*\sin(17/1000))/25, - \\ &(153*\cos(51/2000)*\exp(-9/400))/80 - (6*\exp(-9/400)*\sin(51/2000))/25, -(153*\cos(17/500)*\exp(- \\ &3/100))/80 - (6*\exp(-3/100)*\sin(17/500))/25, -(153*\cos(17/400)*\exp(-3/80))/80 - (6*\exp(- \\ &3/80)*\sin(17/400))/25, -(153*\cos(51/1000)*\exp(-9/200))/80 - (6*\exp(-9/200)*\sin(51/1000))/25, - \\ &(153*\cos(119/2000)*\exp(-21/400))/80 - (6*\exp(-21/400)*\sin(119/2000))/25, - \\ &(153*\cos(17/250)*\exp(-3/50))/80 - (6*\exp(-3/50)*\sin(17/250))/25, -(153*\cos(153/2000)*\exp(- \\ &27/400))/80 - (6*\exp(-27/400)*\sin(153/2000))/25, -(153*\cos(17/200)*\exp(-3/40))/80 - (6*\exp(- \\ &3/40)*\sin(17/200))/25, -(153*\cos(187/2000)*\exp(-33/400))/80 - (6*\exp(- \\ &33/400)*\sin(187/2000))/25, -(153*\cos(51/500)*\exp(-9/100))/80 - (6*\exp(- \\ &9/100)*\sin(51/500))/25, -(153*\cos(221/2000)*\exp(-39/400))/80 - (6*\exp(- \\ &39/400)*\sin(221/2000))/25, -(153*\cos(119/1000)*\exp(-21/200))/80 - (6*\exp(- \\ &21/200)*\sin(119/1000))/25, -(153*\cos(51/400)*\exp(-9/80))/80 - (6*\exp(-9/80)*\sin(51/400))/25, - \\ &(153*\cos(17/125)*\exp(-3/25))/80 - (6*\exp(-3/25)*\sin(17/125))/25, -(153*\cos(289/2000)*\exp(- \\ &51/400))/80 - (6*\exp(-51/400)*\sin(289/2000))/25, -(153*\cos(153/1000)*\exp(-27/200))/80 - \end{aligned}$$

$(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, -$

$(153 \cdot \cos(1241/2000) \cdot \exp(-219/400))/80 - (6 \cdot \exp(-219/400) \cdot \sin(1241/2000))/25, -$   
 $(153 \cdot \cos(629/1000) \cdot \exp(-111/200))/80 - (6 \cdot \exp(-111/200) \cdot \sin(629/1000))/25, -$   
 $(153 \cdot \cos(51/80) \cdot \exp(-9/16))/80 - (6 \cdot \exp(-9/16) \cdot \sin(51/80))/25, - (153 \cdot \cos(323/500) \cdot \exp(-$   
 $57/100))/80 - (6 \cdot \exp(-57/100) \cdot \sin(323/500))/25, - (153 \cdot \cos(1309/2000) \cdot \exp(-231/400))/80 -$   
 $(6 \cdot \exp(-231/400) \cdot \sin(1309/2000))/25, - (153 \cdot \cos(663/1000) \cdot \exp(-117/200))/80 - (6 \cdot \exp(-$   
 $117/200) \cdot \sin(663/1000))/25, - (153 \cdot \cos(1343/2000) \cdot \exp(-237/400))/80 - (6 \cdot \exp(-$   
 $237/400) \cdot \sin(1343/2000))/25, - (153 \cdot \cos(17/25) \cdot \exp(-3/5))/80 - (6 \cdot \exp(-3/5) \cdot \sin(17/25))/25, -$   
 $(153 \cdot \cos(1377/2000) \cdot \exp(-243/400))/80 - (6 \cdot \exp(-243/400) \cdot \sin(1377/2000))/25, -$   
 $(153 \cdot \cos(697/1000) \cdot \exp(-123/200))/80 - (6 \cdot \exp(-123/200) \cdot \sin(697/1000))/25, -$   
 $(153 \cdot \cos(1411/2000) \cdot \exp(-249/400))/80 - (6 \cdot \exp(-249/400) \cdot \sin(1411/2000))/25, -$   
 $(153 \cdot \cos(357/500) \cdot \exp(-63/100))/80 - (6 \cdot \exp(-63/100) \cdot \sin(357/500))/25, -$   
 $(153 \cdot \cos(289/400) \cdot \exp(-51/80))/80 - (6 \cdot \exp(-51/80) \cdot \sin(289/400))/25, -$   
 $(153 \cdot \cos(731/1000) \cdot \exp(-129/200))/80 - (6 \cdot \exp(-129/200) \cdot \sin(731/1000))/25, -$   
 $(153 \cdot \cos(1479/2000) \cdot \exp(-261/400))/80 - (6 \cdot \exp(-261/400) \cdot \sin(1479/2000))/25, -$   
 $(153 \cdot \cos(187/250) \cdot \exp(-33/50))/80 - (6 \cdot \exp(-33/50) \cdot \sin(187/250))/25, -$   
 $(153 \cdot \cos(1513/2000) \cdot \exp(-267/400))/80 - (6 \cdot \exp(-267/400) \cdot \sin(1513/2000))/25, -$   
 $(153 \cdot \cos(153/200) \cdot \exp(-27/40))/80 - (6 \cdot \exp(-27/40) \cdot \sin(153/200))/25, -$   
 $(153 \cdot \cos(1547/2000) \cdot \exp(-273/400))/80 - (6 \cdot \exp(-273/400) \cdot \sin(1547/2000))/25, -$   
 $(153 \cdot \cos(391/500) \cdot \exp(-69/100))/80 - (6 \cdot \exp(-69/100) \cdot \sin(391/500))/25, -$   
 $(153 \cdot \cos(1581/2000) \cdot \exp(-279/400))/80 - (6 \cdot \exp(-279/400) \cdot \sin(1581/2000))/25, -$   
 $(153 \cdot \cos(799/1000) \cdot \exp(-141/200))/80 - (6 \cdot \exp(-141/200) \cdot \sin(799/1000))/25, -$   
 $(153 \cdot \cos(323/400) \cdot \exp(-57/80))/80 - (6 \cdot \exp(-57/80) \cdot \sin(323/400))/25, -$   
 $(153 \cdot \cos(102/125) \cdot \exp(-18/25))/80 - (6 \cdot \exp(-18/25) \cdot \sin(102/125))/25, -$   
 $(153 \cdot \cos(1649/2000) \cdot \exp(-291/400))/80 - (6 \cdot \exp(-291/400) \cdot \sin(1649/2000))/25, -$   
 $(153 \cdot \cos(833/1000) \cdot \exp(-147/200))/80 - (6 \cdot \exp(-147/200) \cdot \sin(833/1000))/25, -$   
 $(153 \cdot \cos(1683/2000) \cdot \exp(-297/400))/80 - (6 \cdot \exp(-297/400) \cdot \sin(1683/2000))/25, -$   
 $(153 \cdot \cos(17/20) \cdot \exp(-3/4))/80 - (6 \cdot \exp(-3/4) \cdot \sin(17/20))/25, - (153 \cdot \cos(1717/2000) \cdot \exp(-$   
 $303/400))/80 - (6 \cdot \exp(-303/400) \cdot \sin(1717/2000))/25, - (153 \cdot \cos(867/1000) \cdot \exp(-153/200))/80 -$   
 $(6 \cdot \exp(-153/200) \cdot \sin(867/1000))/25, - (153 \cdot \cos(1751/2000) \cdot \exp(-309/400))/80 - (6 \cdot \exp(-$   
 $309/400) \cdot \sin(1751/2000))/25, - (153 \cdot \cos(221/250) \cdot \exp(-39/50))/80 - (6 \cdot \exp(-$   
 $39/50) \cdot \sin(221/250))/25, - (153 \cdot \cos(357/400) \cdot \exp(-63/80))/80 - (6 \cdot \exp(-$   
 $63/80) \cdot \sin(357/400))/25, - (153 \cdot \cos(901/1000) \cdot \exp(-159/200))/80 - (6 \cdot \exp(-$   
 $159/200) \cdot \sin(901/1000))/25, - (153 \cdot \cos(1819/2000) \cdot \exp(-321/400))/80 - (6 \cdot \exp(-$   
 $321/400) \cdot \sin(1819/2000))/25, - (153 \cdot \cos(459/500) \cdot \exp(-81/100))/80 - (6 \cdot \exp(-$   
 $81/100) \cdot \sin(459/500))/25, - (153 \cdot \cos(1853/2000) \cdot \exp(-327/400))/80 - (6 \cdot \exp(-$   
 $327/400) \cdot \sin(1853/2000))/25, - (153 \cdot \cos(187/200) \cdot \exp(-33/40))/80 - (6 \cdot \exp(-$   
 $33/40) \cdot \sin(187/200))/25, - (153 \cdot \cos(1887/2000) \cdot \exp(-333/400))/80 - (6 \cdot \exp(-$   
 $333/400) \cdot \sin(1887/2000))/25, - (153 \cdot \cos(119/125) \cdot \exp(-21/25))/80 - (6 \cdot \exp(-$   
 $21/25) \cdot \sin(119/125))/25, - (153 \cdot \cos(1921/2000) \cdot \exp(-339/400))/80 - (6 \cdot \exp(-$   
 $339/400) \cdot \sin(1921/2000))/25, - (153 \cdot \cos(969/1000) \cdot \exp(-171/200))/80 - (6 \cdot \exp(-$   
 $171/200) \cdot \sin(969/1000))/25, - (153 \cdot \cos(391/400) \cdot \exp(-69/80))/80 - (6 \cdot \exp(-$   
 $69/80) \cdot \sin(391/400))/25, - (153 \cdot \cos(493/500) \cdot \exp(-87/100))/80 - (6 \cdot \exp(-$   
 $87/100) \cdot \sin(493/500))/25, - (153 \cdot \cos(1989/2000) \cdot \exp(-351/400))/80 - (6 \cdot \exp(-$   
 $351/400) \cdot \sin(1989/2000))/25, - (153 \cdot \cos(1003/1000) \cdot \exp(-177/200))/80 - (6 \cdot \exp(-$   
 $177/200) \cdot \sin(1003/1000))/25, - (153 \cdot \cos(2023/2000) \cdot \exp(-357/400))/80 - (6 \cdot \exp(-$   
 $357/400) \cdot \sin(2023/2000))/25, - (153 \cdot \cos(51/50) \cdot \exp(-9/10))/80 - (6 \cdot \exp(-9/10) \cdot \sin(51/50))/25, -$   
 $(153 \cdot \cos(2057/2000) \cdot \exp(-363/400))/80 - (6 \cdot \exp(-363/400) \cdot \sin(2057/2000))/25, -$   
 $(153 \cdot \cos(1037/1000) \cdot \exp(-183/200))/80 - (6 \cdot \exp(-183/200) \cdot \sin(1037/1000))/25, -$   
 $(153 \cdot \cos(2091/2000) \cdot \exp(-369/400))/80 - (6 \cdot \exp(-369/400) \cdot \sin(2091/2000))/25, -$   
 $(153 \cdot \cos(527/500) \cdot \exp(-93/100))/80 - (6 \cdot \exp(-93/100) \cdot \sin(527/500))/25, -$   
 $(153 \cdot \cos(17/16) \cdot \exp(-15/16))/80 - (6 \cdot \exp(-15/16) \cdot \sin(17/16))/25, - (153 \cdot \cos(1071/1000) \cdot \exp(-$

189/200))/80 - (6\*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, -

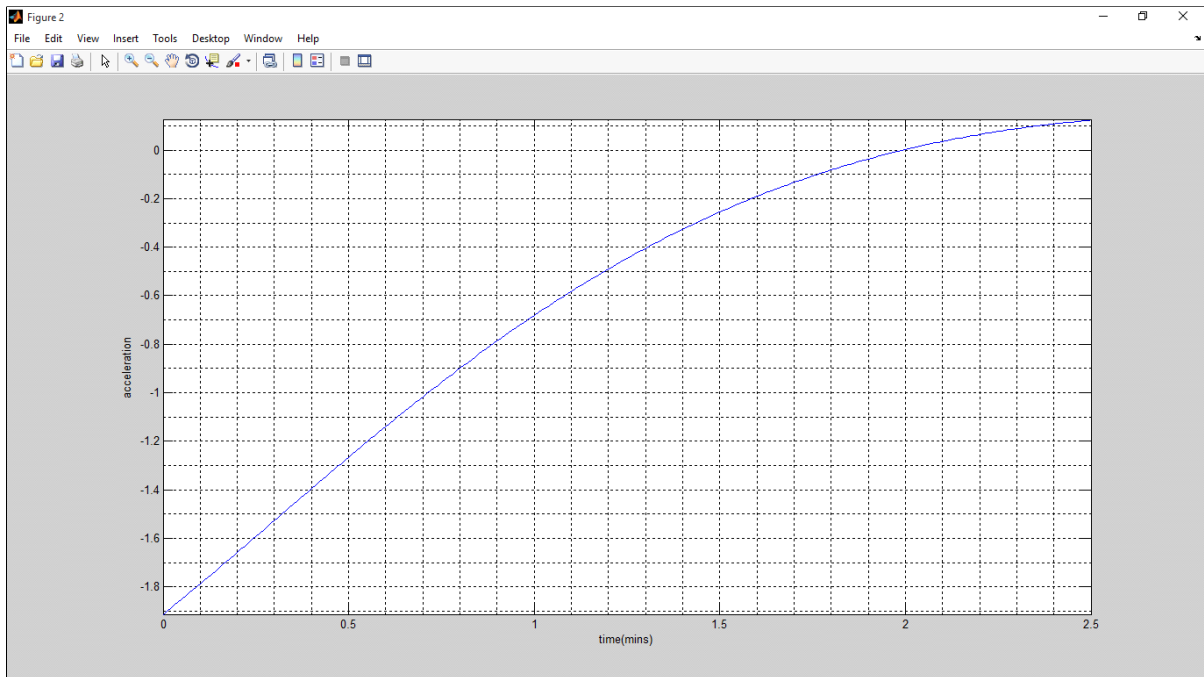
$(153 \cdot \cos(3043/2000) \cdot \exp(-537/400))/80 - (6 \cdot \exp(-537/400) \cdot \sin(3043/2000))/25, -$   
 $(153 \cdot \cos(153/100) \cdot \exp(-27/20))/80 - (6 \cdot \exp(-27/20) \cdot \sin(153/100))/25, -$   
 $(153 \cdot \cos(3077/2000) \cdot \exp(-543/400))/80 - (6 \cdot \exp(-543/400) \cdot \sin(3077/2000))/25, -$   
 $(153 \cdot \cos(1547/1000) \cdot \exp(-273/200))/80 - (6 \cdot \exp(-273/200) \cdot \sin(1547/1000))/25, -$   
 $(153 \cdot \cos(3111/2000) \cdot \exp(-549/400))/80 - (6 \cdot \exp(-549/400) \cdot \sin(3111/2000))/25, -$   
 $(153 \cdot \cos(391/250) \cdot \exp(-69/50))/80 - (6 \cdot \exp(-69/50) \cdot \sin(391/250))/25, -$   
 $(153 \cdot \cos(629/400) \cdot \exp(-111/80))/80 - (6 \cdot \exp(-111/80) \cdot \sin(629/400))/25, -$   
 $(153 \cdot \cos(1581/1000) \cdot \exp(-279/200))/80 - (6 \cdot \exp(-279/200) \cdot \sin(1581/1000))/25, -$   
 $(153 \cdot \cos(3179/2000) \cdot \exp(-561/400))/80 - (6 \cdot \exp(-561/400) \cdot \sin(3179/2000))/25, -$   
 $(153 \cdot \cos(799/500) \cdot \exp(-141/100))/80 - (6 \cdot \exp(-141/100) \cdot \sin(799/500))/25, -$   
 $(153 \cdot \cos(3213/2000) \cdot \exp(-567/400))/80 - (6 \cdot \exp(-567/400) \cdot \sin(3213/2000))/25, -$   
 $(153 \cdot \cos(323/200) \cdot \exp(-57/40))/80 - (6 \cdot \exp(-57/40) \cdot \sin(323/200))/25, -$   
 $(153 \cdot \cos(3247/2000) \cdot \exp(-573/400))/80 - (6 \cdot \exp(-573/400) \cdot \sin(3247/2000))/25, -$   
 $(153 \cdot \cos(204/125) \cdot \exp(-36/25))/80 - (6 \cdot \exp(-36/25) \cdot \sin(204/125))/25, -$   
 $(153 \cdot \cos(3281/2000) \cdot \exp(-579/400))/80 - (6 \cdot \exp(-579/400) \cdot \sin(3281/2000))/25, -$   
 $(153 \cdot \cos(1649/1000) \cdot \exp(-291/200))/80 - (6 \cdot \exp(-291/200) \cdot \sin(1649/1000))/25, -$   
 $(153 \cdot \cos(663/400) \cdot \exp(-117/80))/80 - (6 \cdot \exp(-117/80) \cdot \sin(663/400))/25, -$   
 $(153 \cdot \cos(833/500) \cdot \exp(-147/100))/80 - (6 \cdot \exp(-147/100) \cdot \sin(833/500))/25, -$   
 $(153 \cdot \cos(3349/2000) \cdot \exp(-591/400))/80 - (6 \cdot \exp(-591/400) \cdot \sin(3349/2000))/25, -$   
 $(153 \cdot \cos(1683/1000) \cdot \exp(-297/200))/80 - (6 \cdot \exp(-297/200) \cdot \sin(1683/1000))/25, -$   
 $(153 \cdot \cos(3383/2000) \cdot \exp(-597/400))/80 - (6 \cdot \exp(-597/400) \cdot \sin(3383/2000))/25, -$   
 $(153 \cdot \cos(17/10) \cdot \exp(-3/2))/80 - (6 \cdot \exp(-3/2) \cdot \sin(17/10))/25, - (153 \cdot \cos(3417/2000) \cdot \exp(-$   
 $603/400))/80 - (6 \cdot \exp(-603/400) \cdot \sin(3417/2000))/25, - (153 \cdot \cos(1717/1000) \cdot \exp(-303/200))/80$   
 $- (6 \cdot \exp(-303/200) \cdot \sin(1717/1000))/25, - (153 \cdot \cos(3451/2000) \cdot \exp(-609/400))/80 - (6 \cdot \exp(-$   
 $609/400) \cdot \sin(3451/2000))/25, - (153 \cdot \cos(867/500) \cdot \exp(-153/100))/80 - (6 \cdot \exp(-$   
 $153/100) \cdot \sin(867/500))/25, - (153 \cdot \cos(697/400) \cdot \exp(-123/80))/80 - (6 \cdot \exp(-$   
 $123/80) \cdot \sin(697/400))/25, - (153 \cdot \cos(1751/1000) \cdot \exp(-309/200))/80 - (6 \cdot \exp(-$   
 $309/200) \cdot \sin(1751/1000))/25, - (153 \cdot \cos(3519/2000) \cdot \exp(-621/400))/80 - (6 \cdot \exp(-$   
 $621/400) \cdot \sin(3519/2000))/25, - (153 \cdot \cos(221/125) \cdot \exp(-39/25))/80 - (6 \cdot \exp(-$   
 $39/25) \cdot \sin(221/125))/25, - (153 \cdot \cos(3553/2000) \cdot \exp(-627/400))/80 - (6 \cdot \exp(-$   
 $627/400) \cdot \sin(3553/2000))/25, - (153 \cdot \cos(357/200) \cdot \exp(-63/40))/80 - (6 \cdot \exp(-$   
 $63/40) \cdot \sin(357/200))/25, - (153 \cdot \cos(3587/2000) \cdot \exp(-633/400))/80 - (6 \cdot \exp(-$   
 $633/400) \cdot \sin(3587/2000))/25, - (153 \cdot \cos(901/500) \cdot \exp(-159/100))/80 - (6 \cdot \exp(-$   
 $159/100) \cdot \sin(901/500))/25, - (153 \cdot \cos(3621/2000) \cdot \exp(-639/400))/80 - (6 \cdot \exp(-$   
 $639/400) \cdot \sin(3621/2000))/25, - (153 \cdot \cos(1819/1000) \cdot \exp(-321/200))/80 - (6 \cdot \exp(-$   
 $321/200) \cdot \sin(1819/1000))/25, - (153 \cdot \cos(731/400) \cdot \exp(-129/80))/80 - (6 \cdot \exp(-$   
 $129/80) \cdot \sin(731/400))/25, - (153 \cdot \cos(459/250) \cdot \exp(-81/50))/80 - (6 \cdot \exp(-$   
 $81/50) \cdot \sin(459/250))/25, - (153 \cdot \cos(3689/2000) \cdot \exp(-651/400))/80 - (6 \cdot \exp(-$   
 $651/400) \cdot \sin(3689/2000))/25, - (153 \cdot \cos(1853/1000) \cdot \exp(-327/200))/80 - (6 \cdot \exp(-$   
 $327/200) \cdot \sin(1853/1000))/25, - (153 \cdot \cos(3723/2000) \cdot \exp(-657/400))/80 - (6 \cdot \exp(-$   
 $657/400) \cdot \sin(3723/2000))/25, - (153 \cdot \cos(187/100) \cdot \exp(-33/20))/80 - (6 \cdot \exp(-$   
 $33/20) \cdot \sin(187/100))/25, - (153 \cdot \cos(3757/2000) \cdot \exp(-663/400))/80 - (6 \cdot \exp(-$   
 $663/400) \cdot \sin(3757/2000))/25, - (153 \cdot \cos(1887/1000) \cdot \exp(-333/200))/80 - (6 \cdot \exp(-$   
 $333/200) \cdot \sin(1887/1000))/25, - (153 \cdot \cos(3791/2000) \cdot \exp(-669/400))/80 - (6 \cdot \exp(-$   
 $669/400) \cdot \sin(3791/2000))/25, - (153 \cdot \cos(238/125) \cdot \exp(-42/25))/80 - (6 \cdot \exp(-$   
 $42/25) \cdot \sin(238/125))/25, - (153 \cdot \cos(153/80) \cdot \exp(-27/16))/80 - (6 \cdot \exp(-27/16) \cdot \sin(153/80))/25, -$   
 $(153 \cdot \cos(1921/1000) \cdot \exp(-339/200))/80 - (6 \cdot \exp(-339/200) \cdot \sin(1921/1000))/25, -$   
 $(153 \cdot \cos(3859/2000) \cdot \exp(-681/400))/80 - (6 \cdot \exp(-681/400) \cdot \sin(3859/2000))/25, -$   
 $(153 \cdot \cos(969/500) \cdot \exp(-171/100))/80 - (6 \cdot \exp(-171/100) \cdot \sin(969/500))/25, -$   
 $(153 \cdot \cos(3893/2000) \cdot \exp(-687/400))/80 - (6 \cdot \exp(-687/400) \cdot \sin(3893/2000))/25, -$   
 $(153 \cdot \cos(391/200) \cdot \exp(-69/40))/80 - (6 \cdot \exp(-69/40) \cdot \sin(391/200))/25, -$

$$\begin{aligned}
 & (153 \cos(3927/2000) \exp(-693/400))/80 - (6 \exp(-693/400) \sin(3927/2000))/25, - \\
 & (153 \cos(493/250) \exp(-87/50))/80 - (6 \exp(-87/50) \sin(493/250))/25, - \\
 & (153 \cos(3961/2000) \exp(-699/400))/80 - (6 \exp(-699/400) \sin(3961/2000))/25, - \\
 & (153 \cos(1989/1000) \exp(-351/200))/80 - (6 \exp(-351/200) \sin(1989/1000))/25, - \\
 & (153 \cos(799/400) \exp(-141/80))/80 - (6 \exp(-141/80) \sin(799/400))/25, - \\
 & (153 \cos(1003/500) \exp(-177/100))/80 - (6 \exp(-177/100) \sin(1003/500))/25, - \\
 & (153 \cos(4029/2000) \exp(-711/400))/80 - (6 \exp(-711/400) \sin(4029/2000))/25, - \\
 & (153 \cos(2023/1000) \exp(-357/200))/80 - (6 \exp(-357/200) \sin(2023/1000))/25, - \\
 & (153 \cos(4063/2000) \exp(-717/400))/80 - (6 \exp(-717/400) \sin(4063/2000))/25, - \\
 & (153 \cos(51/25) \exp(-9/5))/80 - (6 \exp(-9/5) \sin(51/25))/25, - (153 \cos(4097/2000) \exp(- \\
 & 723/400))/80 - (6 \exp(-723/400) \sin(4097/2000))/25, - (153 \cos(2057/1000) \exp(-363/200))/80 \\
 & - (6 \exp(-363/200) \sin(2057/1000))/25, - (153 \cos(4131/2000) \exp(-729/400))/80 - (6 \exp(- \\
 & 729/400) \sin(4131/2000))/25, - (153 \cos(1037/500) \exp(-183/100))/80 - (6 \exp(- \\
 & 183/100) \sin(1037/500))/25, - (153 \cos(833/400) \exp(-147/80))/80 - (6 \exp(- \\
 & 147/80) \sin(833/400))/25, - (153 \cos(2091/1000) \exp(-369/200))/80 - (6 \exp(- \\
 & 369/200) \sin(2091/1000))/25, - (153 \cos(4199/2000) \exp(-741/400))/80 - (6 \exp(- \\
 & 741/400) \sin(4199/2000))/25, - (153 \cos(527/250) \exp(-93/50))/80 - (6 \exp(- \\
 & 93/50) \sin(527/250))/25, - (153 \cos(4233/2000) \exp(-747/400))/80 - (6 \exp(- \\
 & 747/400) \sin(4233/2000))/25, - (153 \cos(17/8) \exp(-15/8))/80 - (6 \exp(-15/8) \sin(17/8))/25]
 \end{aligned}$$

```

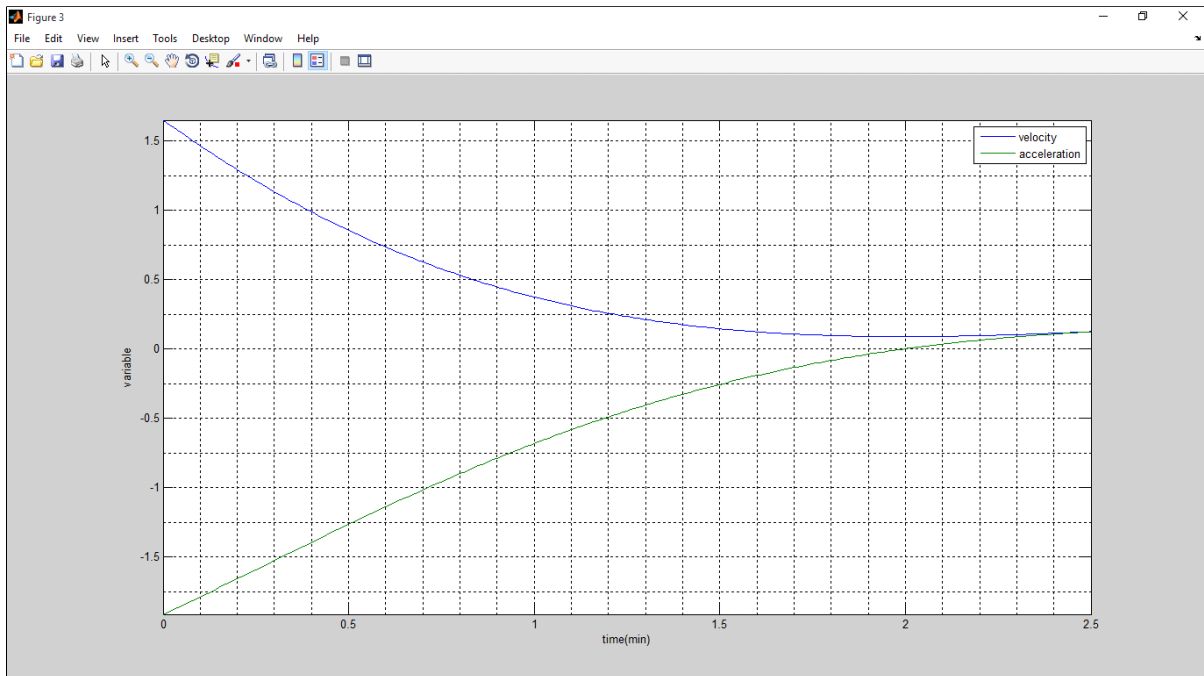
figure (2)
plot(tn,an)
xlabel('time(mins)')
ylabel('acceleration')
axis tight
grid on
grid minor

```





```
figure(3)
plot(tn,vn,tn,an)
xlabel('time(min)')
ylabel('variable')
legend('velocity','acceleration')
axis tight
grid on
grid minor
```



(A)

```
commandwindow
```

```
clear
```

```
clc
```

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

```
A =
```

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

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

```
B =
```

```
   -4
```

```
    2
```

```
    6
```

```
    4
```

```
C=inv(A)
```

```
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
```

```
D= C*B
```

```
D =
```

```
    4.0000
```

```
   -0.0000
```

```
    2.0000
```

```
    6.0000
```

(C)

```
commandwindow  
clear  
clc  
syms x  
y=5*sin(5*x)^5  
y =
```

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

```
yint= int(y)  
yint =
```

```
(2*cos(5*x)^3)/3 - cos(5*x) - cos(5*x)^5/5
```

```
yintd=int(y,0,pi)
```

```
yintd =
```

```
16/15
```

```
yintdd=double(yintd)  
yintdd =
```

```
1.0667
```