

QUESTION 4

a)

CODES;

1. commandwindow
2. clear
3. clc
4. $A = [0 \ 10 \ 4 \ -2; -3 \ -17 \ 1 \ 2; 1 \ 1 \ 1 \ 0; 8 \ -34 \ 16 \ -10]$
5. $B = [-4; 2; 6; 4]$
6. $\text{inverse} = \text{inv}(A)$
7. $\text{Ans} = \text{inverse} * B$
8. sym **Ans**
9. $w = \text{Ans}(1,1)$
10. $x = \text{Ans}(2,1)$
11. $y = \text{Ans}(3,1)$
12. $z = \text{Ans}(4,1)$

COMMAND WINDOW (OUTPUT);

A =

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

B =

-4
2
6
4

invserse =

-0.178571428571429	-0.102040816326531	0.571428571428571
0.0153061224489796		
0.0357142857142857		-0.0153061224489796
0.0357142857142857	-0.0102040816326531	
0.142857142857143		0.11734693877551
0.392857142857143	-0.00510204081632653	
-0.0357142857142857		0.158163265306122
0.964285714285714	-0.0612244897959184	

Ans =

4
-0
2
6

ans =

Ans

w =

4

x =

-0

y =

2

z =

6

>>

b) CODES;

```
1. commandwindow
2. clear
3. clc
4. close all
5. syms t
6. d = 1.5*exp(-0.75*t)*sin(0.85*t)+0.375*t
7. tn = [0:0.01:2.5]
8. v=diff(d)
9. vn=subs (v,tn)
10. figure(1)
11. plot(tn,vn)
12. xlabel('time(min)');
13. ylabel('velocity(m/min)');
14. grid on;
15. grid minor;
16. a=diff(v)
17. an=subs (a,tn)
18. figure(2)
19. plot(tn,an)
20. xlabel('time(min)');
21. ylabel('acceleration(m/min^2)');
22. grid on;
23. grid minor;
24. figure (3)
25. plot(tn,vn,tn,an)
26. axis tight
27. xlabel('time(min)')
28. ylabel('variable')
29. grid on
30. grid minor
31. legend('velocity(m/min)', 'acceleration(m/min^2)', 'location', '
best')
```

COMMAND WINDOW(OUTPUT)

d =

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

tn =

Columns 1 through 4

0	0.01	0.02	0.03
---	------	------	------

Columns 5 through 8

0.04	0.05	0.06	0.07
------	------	------	------

Columns 9 through 12

0.08	0.09	0.1	0.11
------	------	-----	------

Columns 13 through 16

0.12	0.13	0.14	0.15
------	------	------	------

Columns 17 through 20

0.16	0.17	0.18	0.19
------	------	------	------

Columns 21 through 24

0.2	0.21	0.22	0.23
Columns 25 through 28			
0.24	0.25	0.26	0.27
Columns 29 through 32			
0.28	0.29	0.3	0.31
Columns 33 through 36			
0.32	0.33	0.34	0.35
Columns 37 through 40			
0.36	0.37	0.38	0.39
Columns 41 through 44			
0.4	0.41	0.42	0.43
Columns 45 through 48			
0.44	0.45	0.46	0.47
Columns 49 through 52			
0.48	0.49	0.5	0.51
Columns 53 through 56			
0.52	0.53	0.54	0.55

Columns 57 through 60

0.56	0.57	0.58	0.59
------	------	------	------

Columns 61 through 64

0.6	0.61	0.62	0.63
-----	------	------	------

Columns 65 through 68

0.64	0.65	0.66	0.67
------	------	------	------

Columns 69 through 72

0.68	0.69	0.7	0.71
------	------	-----	------

Columns 73 through 76

0.72	0.73	0.74	0.75
------	------	------	------

Columns 77 through 80

0.76	0.77	0.78	0.79
------	------	------	------

Columns 81 through 84

0.8	0.81	0.82	0.83
-----	------	------	------

Columns 85 through 88

0.84	0.85	0.86	0.87
------	------	------	------

Columns 89 through 92

0.88	0.89	0.9	0.91
------	------	-----	------

Columns 93 through 96

0.92	0.93	0.94	0.95
------	------	------	------

Columns 97 through 100

0.96	0.97	0.98	0.99
------	------	------	------

Columns 101 through 104

1	1.01	1.02	1.03
---	------	------	------

Columns 105 through 108

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

Columns 109 through 112

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

Columns 113 through 116

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

Columns 117 through 120

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

Columns 121 through 124

1.2 1.21 1.22 1.23

Columns 125 through 128

1.24 1.25 1.26 1.27

Columns 129 through 132

1.28 1.29 1.3 1.31

Columns 133 through 136

1.32 1.33 1.34 1.35

Columns 137 through 140

1.36 1.37 1.38 1.39

Columns 141 through 144

1.4 1.41 1.42 1.43

Columns 145 through 148

1.44 1.45 1.46 1.47

Columns 149 through 152

1.48 1.49 1.5 1.51

Columns 153 through 156

1.52 1.53 1.54 1.55

Columns 157 through 160

1.56 1.57 1.58 1.59

Columns 161 through 164

1.6 1.61 1.62 1.63

Columns 165 through 168

1.64 1.65 1.66 1.67

Columns 169 through 172

1.68 1.69 1.7 1.71

Columns 173 through 176

1.72 1.73 1.74 1.75

Columns 177 through 180

1.76 1.77 1.78 1.79

Columns 181 through 184

1.8 1.81 1.82 1.83

Columns 185 through 188

1.84 1.85 1.86 1.87

Columns 189 through 192

1.88	1.89	1.9	1.91
------	------	-----	------

Columns 193 through 196

1.92	1.93	1.94	1.95
------	------	------	------

Columns 197 through 200

1.96	1.97	1.98	1.99
------	------	------	------

Columns 201 through 204

2	2.01	2.02	2.03
---	------	------	------

Columns 205 through 208

2.04	2.05	2.06	2.07
------	------	------	------

Columns 209 through 212

2.08	2.09	2.1	2.11
------	------	-----	------

Columns 213 through 216

2.12	2.13	2.14	2.15
------	------	------	------

Columns 217 through 220

2.16	2.17	2.18	2.19
------	------	------	------

Columns 221 through 224

2.2	2.21	2.22	2.23
-----	------	------	------

Columns 225 through 228

2.24	2.25	2.26	2.27
------	------	------	------

Columns 229 through 232

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

Columns 233 through 236

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

Columns 237 through 240

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

Columns 241 through 244

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

Columns 245 through 248

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

Columns 249 through 251

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

v =

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

vn =

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

$$\begin{aligned}
& (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,
\end{aligned}$$

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

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

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

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

$$\begin{aligned}
& (51*\cos(119/100)*\exp(-21/20))/40 - (9*\exp(-21/20)*\sin(119/100))/8 \\
& + 3/8, \quad (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,
\end{aligned}$$

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

$$\begin{aligned}
& (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,
\end{aligned}$$

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

$$\begin{aligned}
& (51*\cos(3961/2000)*\exp(-699/400))/40 - (9*\exp(-699/400)*\sin(3961/2000))/8 + 3/8, \\
& (51*\cos(1989/1000)*\exp(-351/200))/40 - (9*\exp(-351/200)*\sin(1989/1000))/8 + 3/8, \\
& (51*\cos(799/400)*\exp(-141/80))/40 - (9*\exp(-141/80)*\sin(799/400))/8 + 3/8, \\
& (51*\cos(1003/500)*\exp(-177/100))/40 - (9*\exp(-177/100)*\sin(1003/500))/8 + 3/8, \\
& (51*\cos(4029/2000)*\exp(-711/400))/40 - (9*\exp(-711/400)*\sin(4029/2000))/8 + 3/8, \\
& (51*\cos(2023/1000)*\exp(-357/200))/40 - (9*\exp(-357/200)*\sin(2023/1000))/8 + 3/8, \\
& (51*\cos(4063/2000)*\exp(-717/400))/40 - (9*\exp(-717/400)*\sin(4063/2000))/8 + 3/8, \\
& (51*\cos(51/25)*\exp(-9/5))/40 - (9*\exp(-9/5)*\sin(51/25))/8 + 3/8, \\
& (51*\cos(4097/2000)*\exp(-723/400))/40 - (9*\exp(-723/400)*\sin(4097/2000))/8 + 3/8, \\
& (51*\cos(2057/1000)*\exp(-363/200))/40 - (9*\exp(-363/200)*\sin(2057/1000))/8 + 3/8, \\
& (51*\cos(4131/2000)*\exp(-729/400))/40 - (9*\exp(-729/400)*\sin(4131/2000))/8 + 3/8, \\
& (51*\cos(1037/500)*\exp(-183/100))/40 - (9*\exp(-183/100)*\sin(1037/500))/8 + 3/8, \\
& (51*\cos(833/400)*\exp(-147/80))/40 - (9*\exp(-147/80)*\sin(833/400))/8 + 3/8, \\
& (51*\cos(2091/1000)*\exp(-369/200))/40 - (9*\exp(-369/200)*\sin(2091/1000))/8 + 3/8, \\
& (51*\cos(4199/2000)*\exp(-741/400))/40 - (9*\exp(-741/400)*\sin(4199/2000))/8 + 3/8, \\
& (51*\cos(527/250)*\exp(-93/50))/40 - (9*\exp(-93/50)*\sin(527/250))/8 + 3/8, \\
& (51*\cos(4233/2000)*\exp(-747/400))/40 - (9*\exp(-747/400)*\sin(4233/2000))/8 + 3/8, \\
& (51*\cos(17/8)*\exp(-15/8))/40 - (9*\exp(-15/8)*\sin(17/8))/8 + 3/8]
\end{aligned}$$

a =

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

an =

$$\begin{aligned} & [-153/80, - (153*\cos(17/2000)*\exp(-3/400))/80 - (6*\exp(- \\ & 3/400)*\sin(17/2000))/25, - (153*\cos(17/1000)*\exp(-3/200))/80 - \\ & (6*\exp(-3/200)*\sin(17/1000))/25, - (153*\cos(51/2000)*\exp(- \\ & 9/400))/80 - (6*\exp(-9/400)*\sin(51/2000))/25, - \\ & (153*\cos(17/500)*\exp(-3/100))/80 - (6*\exp(- \\ & 3/100)*\sin(17/500))/25, - (153*\cos(17/400)*\exp(-3/80))/80 - \\ & (6*\exp(-3/80)*\sin(17/400))/25, - (153*\cos(51/1000)*\exp(- \\ & 9/200))/80 - (6*\exp(-9/200)*\sin(51/1000))/25, - \\ & (153*\cos(119/2000)*\exp(-21/400))/80 - (6*\exp(- \\ & 21/400)*\sin(119/2000))/25, - (153*\cos(17/250)*\exp(-3/50))/80 - \\ & (6*\exp(-3/50)*\sin(17/250))/25, - (153*\cos(153/2000)*\exp(- \\ & 27/400))/80 - (6*\exp(-27/400)*\sin(153/2000))/25, - \\ & (153*\cos(17/200)*\exp(-3/40))/80 - (6*\exp(-3/40)*\sin(17/200))/25, - \\ & (153*\cos(187/2000)*\exp(-33/400))/80 - (6*\exp(- \\ & 33/400)*\sin(187/2000))/25, - (153*\cos(51/500)*\exp(-9/100))/80 - \\ & (6*\exp(-9/100)*\sin(51/500))/25, - (153*\cos(221/2000)*\exp(- \\ & 39/400))/80 - (6*\exp(-39/400)*\sin(221/2000))/25, - \\ & (153*\cos(119/1000)*\exp(-21/200))/80 - (6*\exp(- \\ & 21/200)*\sin(119/1000))/25, - (153*\cos(51/400)*\exp(-9/80))/80 - \\ & (6*\exp(-9/80)*\sin(51/400))/25, - (153*\cos(17/125)*\exp(-3/25))/80 - \\ & (6*\exp(-3/25)*\sin(17/125))/25, - (153*\cos(289/2000)*\exp(- \\ & 51/400))/80 - (6*\exp(-51/400)*\sin(289/2000))/25, - \\ & (153*\cos(153/1000)*\exp(-27/200))/80 - (6*\exp(- \\ & 27/200)*\sin(153/1000))/25, - (153*\cos(323/2000)*\exp(-57/400))/80 \\ & - (6*\exp(-57/400)*\sin(323/2000))/25, - (153*\cos(17/100)*\exp(- \\ & 3/20))/80 - (6*\exp(-3/20)*\sin(17/100))/25, - \\ & (153*\cos(357/2000)*\exp(-63/400))/80 - (6*\exp(- \\ & 63/400)*\sin(357/2000))/25, - (153*\cos(187/1000)*\exp(-33/200))/80 \\ & - (6*\exp(-33/200)*\sin(187/1000))/25, - (153*\cos(391/2000)*\exp(- \\ & 69/400))/80 - (6*\exp(-69/400)*\sin(391/2000))/25, - \end{aligned}$$

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

$147/400)/80 - (6*\exp(-147/400)*\sin(833/2000))/25, -$
 $(153*\cos(17/40)*\exp(-3/8))/80 - (6*\exp(-3/8)*\sin(17/40))/25, -$
 $(153*\cos(867/2000)*\exp(-153/400))/80 - (6*\exp(-$
 $153/400)*\sin(867/2000))/25, - (153*\cos(221/500)*\exp(-39/100))/80$
 $- (6*\exp(-39/100)*\sin(221/500))/25, - (153*\cos(901/2000)*\exp(-$
 $159/400))/80 - (6*\exp(-159/400)*\sin(901/2000))/25, -$
 $(153*\cos(459/1000)*\exp(-81/200))/80 - (6*\exp(-$
 $81/200)*\sin(459/1000))/25, - (153*\cos(187/400)*\exp(-33/80))/80 -$
 $(6*\exp(-33/80)*\sin(187/400))/25, - (153*\cos(119/250)*\exp(-$
 $21/50))/80 - (6*\exp(-21/50)*\sin(119/250))/25, -$
 $(153*\cos(969/2000)*\exp(-171/400))/80 - (6*\exp(-$
 $171/400)*\sin(969/2000))/25, - (153*\cos(493/1000)*\exp(-$
 $87/200))/80 - (6*\exp(-87/200)*\sin(493/1000))/25, -$
 $(153*\cos(1003/2000)*\exp(-177/400))/80 - (6*\exp(-$
 $177/400)*\sin(1003/2000))/25, - (153*\cos(51/100)*\exp(-9/20))/80 -$
 $(6*\exp(-9/20)*\sin(51/100))/25, - (153*\cos(1037/2000)*\exp(-$
 $183/400))/80 - (6*\exp(-183/400)*\sin(1037/2000))/25, -$
 $(153*\cos(527/1000)*\exp(-93/200))/80 - (6*\exp(-$
 $93/200)*\sin(527/1000))/25, - (153*\cos(1071/2000)*\exp(-$
 $189/400))/80 - (6*\exp(-189/400)*\sin(1071/2000))/25, -$
 $(153*\cos(68/125)*\exp(-12/25))/80 - (6*\exp(-$
 $12/25)*\sin(68/125))/25, - (153*\cos(221/400)*\exp(-39/80))/80 -$
 $(6*\exp(-39/80)*\sin(221/400))/25, - (153*\cos(561/1000)*\exp(-$
 $99/200))/80 - (6*\exp(-99/200)*\sin(561/1000))/25, -$
 $(153*\cos(1139/2000)*\exp(-201/400))/80 - (6*\exp(-$
 $201/400)*\sin(1139/2000))/25, - (153*\cos(289/500)*\exp(-$
 $51/100))/80 - (6*\exp(-51/100)*\sin(289/500))/25, -$
 $(153*\cos(1173/2000)*\exp(-207/400))/80 - (6*\exp(-$
 $207/400)*\sin(1173/2000))/25, - (153*\cos(119/200)*\exp(-21/40))/80$
 $- (6*\exp(-21/40)*\sin(119/200))/25, - (153*\cos(1207/2000)*\exp(-$
 $213/400))/80 - (6*\exp(-213/400)*\sin(1207/2000))/25, -$
 $(153*\cos(153/250)*\exp(-27/50))/80 - (6*\exp(-$
 $27/50)*\sin(153/250))/25, - (153*\cos(1241/2000)*\exp(-219/400))/80$

- (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(-

$(291/400))/80 - (6*\exp(-291/400)*\sin(1649/2000))/25, -$
 $(153*\cos(833/1000)*\exp(-147/200))/80 - (6*\exp(-$
 $147/200)*\sin(833/1000))/25, - (153*\cos(1683/2000)*\exp(-$
 $297/400))/80 - (6*\exp(-297/400)*\sin(1683/2000))/25, -$
 $(153*\cos(17/20)*\exp(-3/4))/80 - (6*\exp(-3/4)*\sin(17/20))/25, -$
 $(153*\cos(1717/2000)*\exp(-303/400))/80 - (6*\exp(-$
 $303/400)*\sin(1717/2000))/25, - (153*\cos(867/1000)*\exp(-$
 $153/200))/80 - (6*\exp(-153/200)*\sin(867/1000))/25, -$
 $(153*\cos(1751/2000)*\exp(-309/400))/80 - (6*\exp(-$
 $309/400)*\sin(1751/2000))/25, - (153*\cos(221/250)*\exp(-39/50))/80$
 $- (6*\exp(-39/50)*\sin(221/250))/25, - (153*\cos(357/400)*\exp(-$
 $63/80))/80 - (6*\exp(-63/80)*\sin(357/400))/25, -$
 $(153*\cos(901/1000)*\exp(-159/200))/80 - (6*\exp(-$
 $159/200)*\sin(901/1000))/25, - (153*\cos(1819/2000)*\exp(-$
 $321/400))/80 - (6*\exp(-321/400)*\sin(1819/2000))/25, -$
 $(153*\cos(459/500)*\exp(-81/100))/80 - (6*\exp(-$
 $81/100)*\sin(459/500))/25, - (153*\cos(1853/2000)*\exp(-$
 $327/400))/80 - (6*\exp(-327/400)*\sin(1853/2000))/25, -$
 $(153*\cos(187/200)*\exp(-33/40))/80 - (6*\exp(-$
 $33/40)*\sin(187/200))/25, - (153*\cos(1887/2000)*\exp(-333/400))/80$
 $- (6*\exp(-333/400)*\sin(1887/2000))/25, - (153*\cos(119/125)*\exp(-$
 $21/25))/80 - (6*\exp(-21/25)*\sin(119/125))/25, -$
 $(153*\cos(1921/2000)*\exp(-339/400))/80 - (6*\exp(-$
 $339/400)*\sin(1921/2000))/25, - (153*\cos(969/1000)*\exp(-$
 $171/200))/80 - (6*\exp(-171/200)*\sin(969/1000))/25, -$
 $(153*\cos(391/400)*\exp(-69/80))/80 - (6*\exp(-$
 $69/80)*\sin(391/400))/25, - (153*\cos(493/500)*\exp(-87/100))/80 -$
 $(6*\exp(-87/100)*\sin(493/500))/25, - (153*\cos(1989/2000)*\exp(-$
 $351/400))/80 - (6*\exp(-351/400)*\sin(1989/2000))/25, -$
 $(153*\cos(1003/1000)*\exp(-177/200))/80 - (6*\exp(-$
 $177/200)*\sin(1003/1000))/25, - (153*\cos(2023/2000)*\exp(-$
 $357/400))/80 - (6*\exp(-357/400)*\sin(2023/2000))/25, -$
 $(153*\cos(51/50)*\exp(-9/10))/80 - (6*\exp(-9/10)*\sin(51/50))/25, -$

$(153 \cdot \cos(2057/2000) \cdot \exp(-363/400))/80$ - $(6 \cdot \exp(-363/400) \cdot \sin(2057/2000))/25,$ - $(153 \cdot \cos(1037/1000) \cdot \exp(-183/200))/80$ - $(6 \cdot \exp(-183/200) \cdot \sin(1037/1000))/25,$ - $(153 \cdot \cos(2091/2000) \cdot \exp(-369/400))/80$ - $(6 \cdot \exp(-369/400) \cdot \sin(2091/2000))/25,$ - $(153 \cdot \cos(527/500) \cdot \exp(-93/100))/80$ - $(6 \cdot \exp(-93/100) \cdot \sin(527/500))/25,$ - $(153 \cdot \cos(17/16) \cdot \exp(-15/16))/80$ - $(6 \cdot \exp(-15/16) \cdot \sin(17/16))/25,$ - $(153 \cdot \cos(1071/1000) \cdot \exp(-189/200))/80$ - $(6 \cdot \exp(-189/200) \cdot \sin(1071/1000))/25,$ - $(153 \cdot \cos(2159/2000) \cdot \exp(-381/400))/80$ - $(6 \cdot \exp(-381/400) \cdot \sin(2159/2000))/25,$ - $(153 \cdot \cos(136/125) \cdot \exp(-24/25))/80$ - $(6 \cdot \exp(-24/25) \cdot \sin(136/125))/25,$ - $(153 \cdot \cos(2193/2000) \cdot \exp(-387/400))/80$ - $(6 \cdot \exp(-387/400) \cdot \sin(2193/2000))/25,$ - $(153 \cdot \cos(221/200) \cdot \exp(-39/40))/80$ - $(6 \cdot \exp(-39/40) \cdot \sin(221/200))/25,$ - $(153 \cdot \cos(2227/2000) \cdot \exp(-393/400))/80$ - $(6 \cdot \exp(-393/400) \cdot \sin(2227/2000))/25,$ - $(153 \cdot \cos(561/500) \cdot \exp(-99/100))/80$ - $(6 \cdot \exp(-99/100) \cdot \sin(561/500))/25,$ - $(153 \cdot \cos(2261/2000) \cdot \exp(-399/400))/80$ - $(6 \cdot \exp(-399/400) \cdot \sin(2261/2000))/25,$ - $(153 \cdot \cos(1139/1000) \cdot \exp(-201/200))/80$ - $(6 \cdot \exp(-201/200) \cdot \sin(1139/1000))/25,$ - $(153 \cdot \cos(459/400) \cdot \exp(-81/80))/80$ - $(6 \cdot \exp(-81/80) \cdot \sin(459/400))/25,$ - $(153 \cdot \cos(289/250) \cdot \exp(-51/50))/80$ - $(6 \cdot \exp(-51/50) \cdot \sin(289/250))/25,$ - $(153 \cdot \cos(2329/2000) \cdot \exp(-411/400))/80$ - $(6 \cdot \exp(-411/400) \cdot \sin(2329/2000))/25,$ - $(153 \cdot \cos(1173/1000) \cdot \exp(-207/200))/80$ - $(6 \cdot \exp(-207/200) \cdot \sin(1173/1000))/25,$ - $(153 \cdot \cos(2363/2000) \cdot \exp(-417/400))/80$ - $(6 \cdot \exp(-417/400) \cdot \sin(2363/2000))/25,$ - $(153 \cdot \cos(119/100) \cdot \exp(-21/20))/80$ - $(6 \cdot \exp(-21/20) \cdot \sin(119/100))/25,$ - $(153 \cdot \cos(2397/2000) \cdot \exp(-423/400))/80$ - $(6 \cdot \exp(-423/400) \cdot \sin(2397/2000))/25,$ - $(153 \cdot \cos(1207/1000) \cdot \exp(-213/200))/80$ - $(6 \cdot \exp(-213/200) \cdot \sin(1207/1000))/25,$ - $(153 \cdot \cos(2431/2000) \cdot \exp(-429/400))/80$ - $(6 \cdot \exp(-429/400) \cdot \sin(2431/2000))/25,$ -

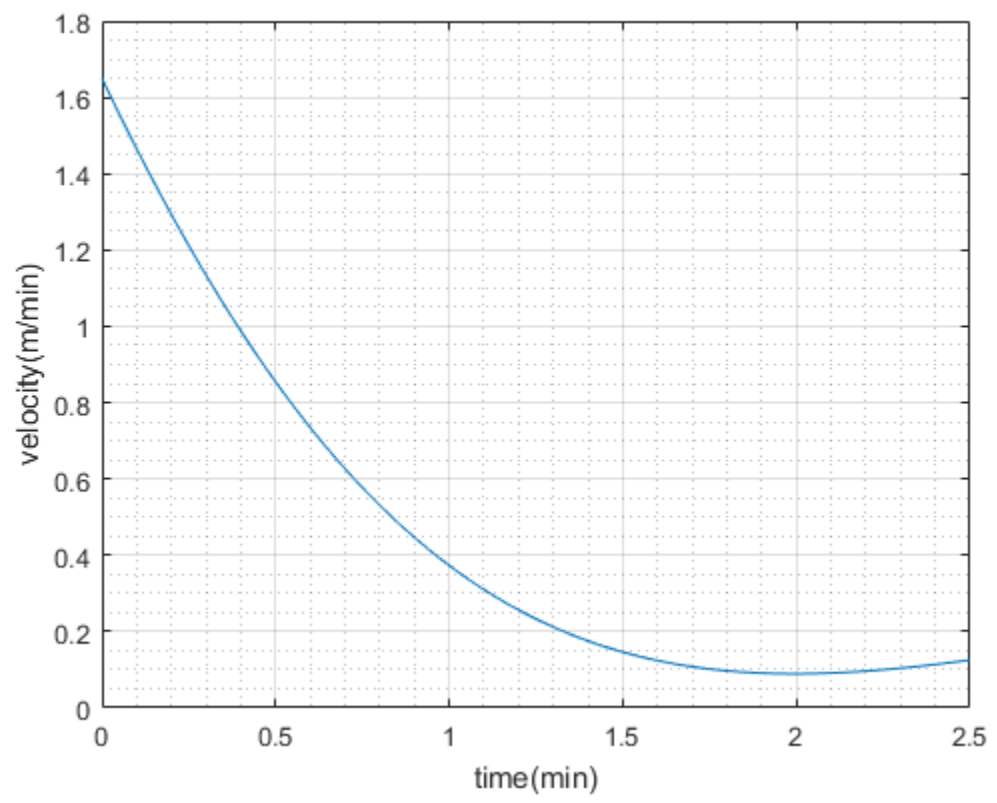
$$\begin{aligned}
& (153 \cdot \cos(153/125) \cdot \exp(-27/25))/80 - (6 \cdot \exp(-27/25) \cdot \sin(153/125))/25, - (153 \cdot \cos(493/400) \cdot \exp(-87/80))/80 - \\
& (6 \cdot \exp(-87/80) \cdot \sin(493/400))/25, - (153 \cdot \cos(1241/1000) \cdot \exp(-219/200))/80 - \\
& (6 \cdot \exp(-219/200) \cdot \sin(1241/1000))/25, - (153 \cdot \cos(2499/2000) \cdot \exp(-441/400))/80 - \\
& (6 \cdot \exp(-441/400) \cdot \sin(2499/2000))/25, - (153 \cdot \cos(629/500) \cdot \exp(-111/100))/80 - \\
& (6 \cdot \exp(-111/100) \cdot \sin(629/500))/25, - (153 \cdot \cos(2533/2000) \cdot \exp(-447/400))/80 - \\
& (6 \cdot \exp(-447/400) \cdot \sin(2533/2000))/25, - (153 \cdot \cos(51/40) \cdot \exp(-9/8))/80 - \\
& (6 \cdot \exp(-9/8) \cdot \sin(51/40))/25, - (153 \cdot \cos(2567/2000) \cdot \exp(-453/400))/80 - \\
& (6 \cdot \exp(-453/400) \cdot \sin(2567/2000))/25, - (153 \cdot \cos(323/250) \cdot \exp(-57/50))/80 - \\
& (6 \cdot \exp(-57/50) \cdot \sin(323/250))/25, - (153 \cdot \cos(2601/2000) \cdot \exp(-459/400))/80 - \\
& (6 \cdot \exp(-459/400) \cdot \sin(2601/2000))/25, - (153 \cdot \cos(1309/1000) \cdot \exp(-231/200))/80 - \\
& (6 \cdot \exp(-231/200) \cdot \sin(1309/1000))/25, - (153 \cdot \cos(527/400) \cdot \exp(-93/80))/80 - \\
& (6 \cdot \exp(-93/80) \cdot \sin(527/400))/25, - (153 \cdot \cos(663/500) \cdot \exp(-117/100))/80 - \\
& (6 \cdot \exp(-117/100) \cdot \sin(663/500))/25, - (153 \cdot \cos(2669/2000) \cdot \exp(-471/400))/80 - \\
& (6 \cdot \exp(-471/400) \cdot \sin(2669/2000))/25, - (153 \cdot \cos(1343/1000) \cdot \exp(-237/200))/80 - \\
& (6 \cdot \exp(-237/200) \cdot \sin(1343/1000))/25, - (153 \cdot \cos(2703/2000) \cdot \exp(-477/400))/80 - \\
& (6 \cdot \exp(-477/400) \cdot \sin(2703/2000))/25, - (153 \cdot \cos(34/25) \cdot \exp(-6/5))/80 - \\
& (6 \cdot \exp(-6/5) \cdot \sin(34/25))/25, - (153 \cdot \cos(2737/2000) \cdot \exp(-483/400))/80 - \\
& (6 \cdot \exp(-483/400) \cdot \sin(2737/2000))/25, - (153 \cdot \cos(1377/1000) \cdot \exp(-243/200))/80 - \\
& (6 \cdot \exp(-243/200) \cdot \sin(1377/1000))/25, - (153 \cdot \cos(2771/2000) \cdot \exp(-489/400))/80 - \\
& (6 \cdot \exp(-489/400) \cdot \sin(2771/2000))/25, - (153 \cdot \cos(697/500) \cdot \exp(-123/100))/80 - \\
& (6 \cdot \exp(-123/100) \cdot \sin(697/500))/25, - (153 \cdot \cos(561/400) \cdot \exp(-99/80))/80 - \\
& (6 \cdot \exp(-99/80) \cdot \sin(561/400))/25, - (153 \cdot \cos(1411/1000) \cdot \exp(-249/200))/80 - \\
& (6 \cdot \exp(-249/200) \cdot \sin(1411/1000))/25, - (153 \cdot \cos(2839/2000) \cdot \exp(-501/400))/80 - \\
& (6 \cdot \exp(-501/400) \cdot \sin(2839/2000))/25, -
\end{aligned}$$

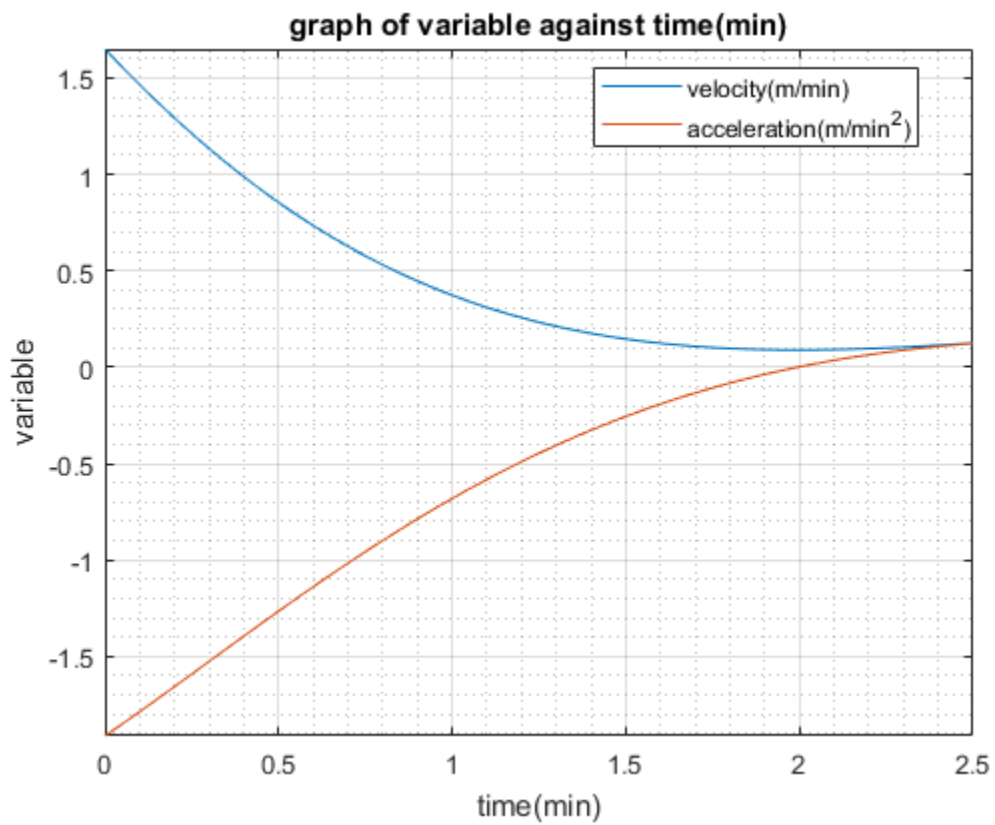
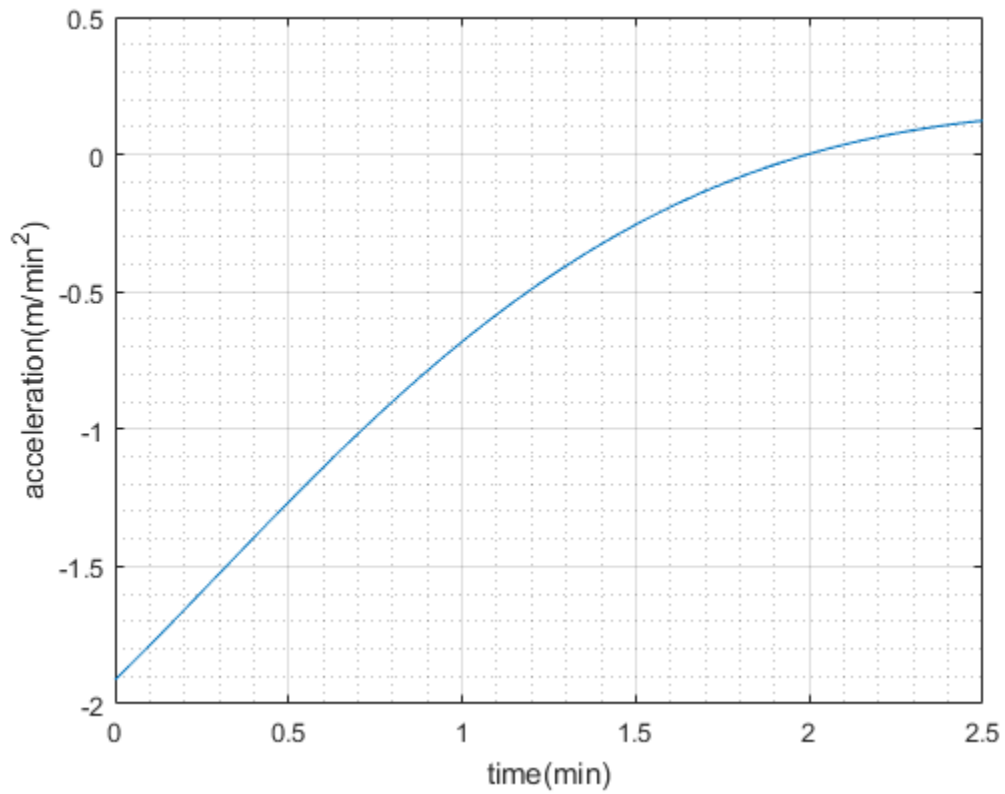
$501/400) \cdot \sin(2839/2000))/25, - (153 \cdot \cos(357/250) \cdot \exp(-63/50))/80$
 $- (6 \cdot \exp(-63/50) \cdot \sin(357/250))/25, - (153 \cdot \cos(2873/2000) \cdot \exp(-$
 $507/400))/80 - (6 \cdot \exp(-507/400) \cdot \sin(2873/2000))/25, -$
 $(153 \cdot \cos(289/200) \cdot \exp(-51/40))/80 - (6 \cdot \exp(-$
 $51/40) \cdot \sin(289/200))/25, - (153 \cdot \cos(2907/2000) \cdot \exp(-513/400))/80$
 $- (6 \cdot \exp(-513/400) \cdot \sin(2907/2000))/25, - (153 \cdot \cos(731/500) \cdot \exp(-$
 $129/100))/80 - (6 \cdot \exp(-129/100) \cdot \sin(731/500))/25, -$
 $(153 \cdot \cos(2941/2000) \cdot \exp(-519/400))/80 - (6 \cdot \exp(-$
 $519/400) \cdot \sin(2941/2000))/25, - (153 \cdot \cos(1479/1000) \cdot \exp(-$
 $261/200))/80 - (6 \cdot \exp(-261/200) \cdot \sin(1479/1000))/25, -$
 $(153 \cdot \cos(119/80) \cdot \exp(-21/16))/80 - (6 \cdot \exp(-$
 $21/16) \cdot \sin(119/80))/25, - (153 \cdot \cos(187/125) \cdot \exp(-33/25))/80 -$
 $(6 \cdot \exp(-33/25) \cdot \sin(187/125))/25, - (153 \cdot \cos(3009/2000) \cdot \exp(-$
 $531/400))/80 - (6 \cdot \exp(-531/400) \cdot \sin(3009/2000))/25, -$
 $(153 \cdot \cos(1513/1000) \cdot \exp(-267/200))/80 - (6 \cdot \exp(-$
 $267/200) \cdot \sin(1513/1000))/25, - (153 \cdot \cos(3043/2000) \cdot \exp(-$
 $537/400))/80 - (6 \cdot \exp(-537/400) \cdot \sin(3043/2000))/25, -$
 $(153 \cdot \cos(153/100) \cdot \exp(-27/20))/80 - (6 \cdot \exp(-$
 $27/20) \cdot \sin(153/100))/25, - (153 \cdot \cos(3077/2000) \cdot \exp(-543/400))/80$
 $- (6 \cdot \exp(-543/400) \cdot \sin(3077/2000))/25, -$
 $(153 \cdot \cos(1547/1000) \cdot \exp(-273/200))/80 - (6 \cdot \exp(-$
 $273/200) \cdot \sin(1547/1000))/25, - (153 \cdot \cos(3111/2000) \cdot \exp(-$
 $549/400))/80 - (6 \cdot \exp(-549/400) \cdot \sin(3111/2000))/25, -$
 $(153 \cdot \cos(391/250) \cdot \exp(-69/50))/80 - (6 \cdot \exp(-$
 $69/50) \cdot \sin(391/250))/25, - (153 \cdot \cos(629/400) \cdot \exp(-111/80))/80 -$
 $(6 \cdot \exp(-111/80) \cdot \sin(629/400))/25, - (153 \cdot \cos(1581/1000) \cdot \exp(-$
 $279/200))/80 - (6 \cdot \exp(-279/200) \cdot \sin(1581/1000))/25, -$
 $(153 \cdot \cos(3179/2000) \cdot \exp(-561/400))/80 - (6 \cdot \exp(-$
 $561/400) \cdot \sin(3179/2000))/25, - (153 \cdot \cos(799/500) \cdot \exp(-$
 $141/100))/80 - (6 \cdot \exp(-141/100) \cdot \sin(799/500))/25, -$
 $(153 \cdot \cos(3213/2000) \cdot \exp(-567/400))/80 - (6 \cdot \exp(-$
 $567/400) \cdot \sin(3213/2000))/25, - (153 \cdot \cos(323/200) \cdot \exp(-57/40))/80$
 $- (6 \cdot \exp(-57/40) \cdot \sin(323/200))/25, - (153 \cdot \cos(3247/2000) \cdot \exp(-$

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

$321/200)/80 - (6*\exp(-321/200)*\sin(1819/1000))/25, -$
 $(153*\cos(731/400)*\exp(-129/80))/80 - (6*\exp(-$
 $129/80)*\sin(731/400))/25, - (153*\cos(459/250)*\exp(-81/50))/80 -$
 $(6*\exp(-81/50)*\sin(459/250))/25, - (153*\cos(3689/2000)*\exp(-$
 $651/400))/80 - (6*\exp(-651/400)*\sin(3689/2000))/25, -$
 $(153*\cos(1853/1000)*\exp(-327/200))/80 - (6*\exp(-$
 $327/200)*\sin(1853/1000))/25, - (153*\cos(3723/2000)*\exp(-$
 $657/400))/80 - (6*\exp(-657/400)*\sin(3723/2000))/25, -$
 $(153*\cos(187/100)*\exp(-33/20))/80 - (6*\exp(-$
 $33/20)*\sin(187/100))/25, - (153*\cos(3757/2000)*\exp(-663/400))/80$
 $- (6*\exp(-663/400)*\sin(3757/2000))/25, -$
 $(153*\cos(1887/1000)*\exp(-333/200))/80 - (6*\exp(-$
 $333/200)*\sin(1887/1000))/25, - (153*\cos(3791/2000)*\exp(-$
 $669/400))/80 - (6*\exp(-669/400)*\sin(3791/2000))/25, -$
 $(153*\cos(238/125)*\exp(-42/25))/80 - (6*\exp(-$
 $42/25)*\sin(238/125))/25, - (153*\cos(153/80)*\exp(-27/16))/80 -$
 $(6*\exp(-27/16)*\sin(153/80))/25, - (153*\cos(1921/1000)*\exp(-$
 $339/200))/80 - (6*\exp(-339/200)*\sin(1921/1000))/25, -$
 $(153*\cos(3859/2000)*\exp(-681/400))/80 - (6*\exp(-$
 $681/400)*\sin(3859/2000))/25, - (153*\cos(969/500)*\exp(-$
 $171/100))/80 - (6*\exp(-171/100)*\sin(969/500))/25, -$
 $(153*\cos(3893/2000)*\exp(-687/400))/80 - (6*\exp(-$
 $687/400)*\sin(3893/2000))/25, - (153*\cos(391/200)*\exp(-69/40))/80$
 $- (6*\exp(-69/40)*\sin(391/200))/25, - (153*\cos(3927/2000)*\exp(-$
 $693/400))/80 - (6*\exp(-693/400)*\sin(3927/2000))/25, -$
 $(153*\cos(493/250)*\exp(-87/50))/80 - (6*\exp(-$
 $87/50)*\sin(493/250))/25, - (153*\cos(3961/2000)*\exp(-699/400))/80$
 $- (6*\exp(-699/400)*\sin(3961/2000))/25, -$
 $(153*\cos(1989/1000)*\exp(-351/200))/80 - (6*\exp(-$
 $351/200)*\sin(1989/1000))/25, - (153*\cos(799/400)*\exp(-$
 $141/80))/80 - (6*\exp(-141/80)*\sin(799/400))/25, -$
 $(153*\cos(1003/500)*\exp(-177/100))/80 - (6*\exp(-$
 $177/100)*\sin(1003/500))/25, - (153*\cos(4029/2000)*\exp(-$

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





c)

CODES;

1. commandwindow
2. clear
3. clc
4. syms x
5. $y=5*\sin(5*x)^5$
6. $Y=y^2$
7. $ZY=\text{int}(Y)*\pi$
8. $\text{dint}=\text{int}(ZY,0,\pi)$
9. $\text{zm}=\text{double}(\text{dint})$
10. format long g

COMMAND WINDOW(OUTPUT)

y =

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

Y =

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

ZY =

$\pi*((1575*x)/256 - (525*\sin(10*x))/512 + (75*\sin(20*x))/256 - (75*\sin(30*x))/1024 + (25*\sin(40*x))/2048 - \sin(50*x)/1024)$

dint =

$$(1575 \cdot \pi^3) / 512$$

zm =

95.381

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