

16/ENG04/037

1. function

```
T=myexplicitfun(a,dt,dx,x0,xf,t0,tf,n,m)
```

```
2. c = 2.2;
```

```
3. dt=0.02; dx=0.3; x0=0; xf=6; t0=0;
```

```
tf=0.3;
```

```
4. n = (xf-x0)/dx; m=(tf-t0)/dt;
```

```
5. x = [x0:dx:xf];
```

```
6. t = [t0:dt:tf];
```

```
7. r = (c*dt)/(dx^2);
```

```
8. T = zeros(m+1,n+1);
```

```
9. T(1,1:n+1) = 3*(x.^2);
```

```
10. T(1:m+1,1) = zeros(m+1,1);
```

```
11. T(1:m+1,n+1) = 108*(ones(m+1,1));
```

```
12. for j =1:m
```

```
13.     for i=2:n
```

```
14.
```

```
1);
```

```
15.     end
```

```
16. end
```

```
T(j+1,i)=r*T(j,i+1)+((1-
```

```
(2*r))*T(j,i))+r*T(j,i-
```

```
17. T; 18. mesh(x,t,T) commandwindow ans =
```

Columns 1 through 7

	0	0.2700	1.0800	2.4300
4.3200				
6.7500	9.7200			
	0	0.5340	1.3440	2.6940
4.5840				
7.0140	9.9840			
0	0.6689	1.6080	2.9580	4.8480
7.2780				
10.2480				

0	0.8010	1.8089	3.2220	5.1120
7.5420				
10.5120				
0	0.9022	2.0070	3.4552	5.3760
7.8060				
10.7760				
0	1.0012	2.1748	3.6862	5.6249
8.0700				
11.0400				
0	1.0855	2.3400	3.8951	5.8725
8.3266				
11.3040				

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0	1.1681	2.4870	4.1016	6.1056	8.5824
11.5644					
0	1.2418	2.6316	4.2920	6.3367	8.8294
11.8243					
0	1.3141	2.7639	4.4799	6.5557	9.0749
12.0790					
0	1.3804	2.8940	4.6558	6.7725	9.3120
12.3328					

0	1.4455	3.0154	4.8293	6.9792	9
12.5809					
0	1.5063	3.1347	4.9935	7.1837	9
12.8278					
0	1.5660	3.2474	5.1555	7.3798	10
13.0692					
0	1.6224	3.3582	5.3100	7.5737	10
13.3090					
0	1.6779	3.4638	5.4625	7.7605	10
13.5436					
Columns 8 through 14					
13.2300	17.2800	21.8700	27.0000	32.6700	38

45.6300					
13.4940	17.5440	22.1340	27.2640	32.9340	39
45.8940					
13.7580	17.8080	22.3980	27.5280	33.1980	39
46.1580					
14.0220	18.0720	22.6620	27.7920	33.4620	39
46.4220					
14.2860	18.3360	22.9260	28.0560	33.7260	39
46.6860					

14.5500	18.6000	23.1900	28.3200	33.9900	40.
46.9500					
14.8140	18.8640	23.4540	28.5840	34.2540	40.
47.2140					
15.0780	19.1280	23.7180	28.8480	34.5180	40.
47.4780					
15.3402	19.3920	23.9820	29.1120	34.7820	40.
47.7402					
15.6022	19.6551	24.2460	29.3760	35.0460	41.
48.0022					

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15.8612	19.9181	24.5096	29.6400
35.3096	41.5181		
48.2612			

16.1196	20.1794	24.7731	29.9036	35.5731
41.7794				
48.5196				
16.3744	20.4404	25.0356	30.1671	35.8356
42.0404				
48.7744				
16.6283	20.6991	25.2978	30.4296	36.0978

42.2991

49.0283

16.8784	20.9572	25.5584	30.6918	36.3584
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42.5572

49.2784

17.1275	21.2126	25.8186	30.9525	36.6186
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42.8126

49.5275

Columns 15 through 21

52.9200	60.7500	69.1200	78.0300	87.4800
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97.4700

108.0000

53.1840	61.0140	69.3840	78.2940	87.7440
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97.7340

108.0000

53.4480	61.2780	69.6480	78.5580	88.0080
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97.8689

108.0000

53.7120	61.5420	69.9120	78.8220	88.2089
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98.0010

108.0000

53.9760	61.8060	70.1760	79.0552	88.4070
---------	---------	---------	---------	---------

98.1022

108.0000

54.2400	62.0700	70.4249	79.2862	88.5748
---------	---------	---------	---------	---------

98.2012

108.0000

54.5040	62.3266	70.6725	79.4951	88.7400
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98.2855

108.0000

54.7644	62.5824	70.9056	79.7016	88.8870
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98.3681

108.0000

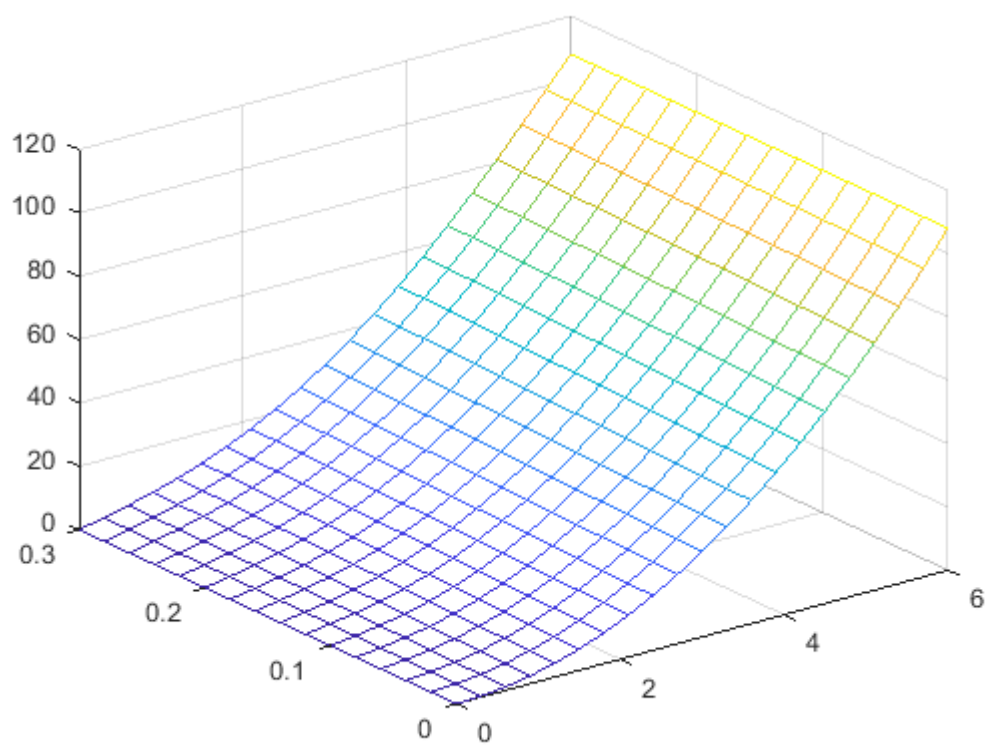
55.0243	62.8294	71.1367	79.8920	89.0316
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98.4418

108.0000				
55.2790	63.0749	71.3557	80.0799	89.1639
98.5141				
108.0000				
55.5328	63.3120	71.5725	80.2558	89.2940
98.5804				
108.0000				
55.7809	63.5473	71.7792	80.4293	89.4154
98.6455				
108.0000				
56.0278	63.7749	71.9837	80.5935	89.5347
98.7063				
108.0000				

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56.2692	64.0006	72.1798	80.7555
89.6474	98.7660		
108.0000			
56.5090	64.2195	72.3737	80.9100
89.7582	98.8224		
108.0000			
56.7436	64.4364	72.5605	81.0625
89.8638	98.8779		
108.0000			



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