
Camp de direccions

```
f=@(t,y)7.*y.*(1-y);  
t=0:0.1:2; y=-0.4:0.1:1.6;  
[TT,YY] = meshgrid(t,y);  
DT=ones(size(TT));  
DY=f(TT,YY)
```

DY =

Columns 1 through 6

-3.92	-3.92	-3.92	-3.92	-3.92
-3.92				
-2.73	-2.73	-2.73	-2.73	-2.73
-2.73				
-1.68	-1.68	-1.68	-1.68	-1.68
-1.68				
-0.77	-0.77	-0.77	-0.77	-0.77
-0.77				
0	0	0	0	0
0				
0.63	0.63	0.63	0.63	0.63
0.63				
1.12	1.12	1.12	1.12	1.12
1.12				
1.47	1.47	1.47	1.47	1.47
1.47				
1.68	1.68	1.68	1.68	1.68
1.68				
1.75	1.75	1.75	1.75	1.75
1.75				
1.68	1.68	1.68	1.68	1.68
1.68				
1.47	1.47	1.47	1.47	1.47
1.47				
1.12	1.12	1.12	1.12	1.12
1.12				
0.63	0.63	0.63	0.63	0.63
0.63				
0	0	0	0	0
0				
-0.77	-0.77	-0.77	-0.77	-0.77
-0.77				
-1.68	-1.68	-1.68	-1.68	-1.68
-1.68				
-2.73	-2.73	-2.73	-2.73	-2.73
-2.73				
-3.92	-3.92	-3.92	-3.92	-3.92
-3.92				
-5.25	-5.25	-5.25	-5.25	-5.25
-5.25				
-6.72	-6.72	-6.72	-6.72	-6.72
-6.72				

Columns 7 through 12

-3.92	-3.92	-3.92	-3.92	-3.92
-3.92				
-2.73	-2.73	-2.73	-2.73	-2.73
-2.73				
-1.68	-1.68	-1.68	-1.68	-1.68
-1.68				
-0.77	-0.77	-0.77	-0.77	-0.77
-0.77				
0	0	0	0	0
0				
0.63	0.63	0.63	0.63	0.63
0.63				
1.12	1.12	1.12	1.12	1.12
1.12				
1.47	1.47	1.47	1.47	1.47
1.47				
1.68	1.68	1.68	1.68	1.68
1.68				
1.75	1.75	1.75	1.75	1.75
1.75				
1.68	1.68	1.68	1.68	1.68
1.68				
1.47	1.47	1.47	1.47	1.47
1.47				
1.12	1.12	1.12	1.12	1.12
1.12				
0.63	0.63	0.63	0.63	0.63
0.63				
0	0	0	0	0
0				
-0.77	-0.77	-0.77	-0.77	-0.77
-0.77				
-1.68	-1.68	-1.68	-1.68	-1.68
-1.68				
-2.73	-2.73	-2.73	-2.73	-2.73
-2.73				
-3.92	-3.92	-3.92	-3.92	-3.92
-3.92				
-5.25	-5.25	-5.25	-5.25	-5.25
-5.25				
-6.72	-6.72	-6.72	-6.72	-6.72
-6.72				

Columns 13 through 18

-3.92	-3.92	-3.92	-3.92	-3.92
-3.92				
-2.73	-2.73	-2.73	-2.73	-2.73
-2.73				
-1.68	-1.68	-1.68	-1.68	-1.68
-1.68				
-0.77	-0.77	-0.77	-0.77	-0.77
-0.77				
0	0	0	0	0
0				

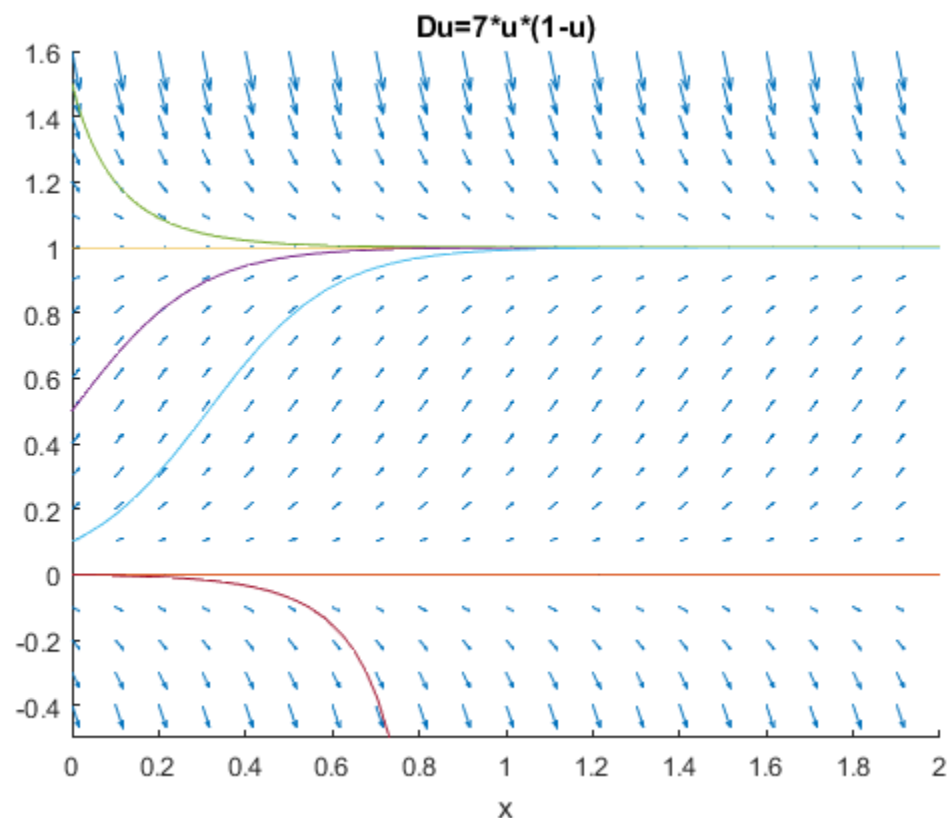
0.63	0.63	0.63	0.63	0.63
0.63	1.12	1.12	1.12	1.12
1.12	1.47	1.47	1.47	1.47
1.47	1.68	1.68	1.68	1.68
1.68	1.75	1.75	1.75	1.75
1.75	1.68	1.68	1.68	1.68
1.68	1.47	1.47	1.47	1.47
1.47	1.12	1.12	1.12	1.12
1.12	0.63	0.63	0.63	0.63
0.63	0	0	0	0
0	-0.77	-0.77	-0.77	-0.77
-0.77	-1.68	-1.68	-1.68	-1.68
-1.68	-2.73	-2.73	-2.73	-2.73
-2.73	-3.92	-3.92	-3.92	-3.92
-3.92	-5.25	-5.25	-5.25	-5.25
-5.25	-6.72	-6.72	-6.72	-6.72
-6.72	<i>Columns 19 through 21</i>			
-3.92	-3.92	-3.92		
-2.73	-2.73	-2.73		
-1.68	-1.68	-1.68		
-0.77	-0.77	-0.77		
0	0	0		
0.63	0.63	0.63		
1.12	1.12	1.12		
1.47	1.47	1.47		
1.68	1.68	1.68		
1.75	1.75	1.75		
1.68	1.68	1.68		
1.47	1.47	1.47		
1.12	1.12	1.12		
0.63	0.63	0.63		
0	0	0		
-0.77	-0.77	-0.77		
-1.68	-1.68	-1.68		
-2.73	-2.73	-2.73		
-3.92	-3.92	-3.92		
-5.25	-5.25	-5.25		
-6.72	-6.72	-6.72		

PVI

```
u0=dsolve('Du=7*u*(1-u)','u(0)=0');  
u1=dsolve('Du=7*u*(1-u)','u(0)=1');  
[t5,y5] = ode45(f, [0,2], 0.5);  
[t15,y15] = ode45(f, [0,2], 1.5);  
[t1,y1] = ode45(f, [0,2], 0.1);  
[t2,y2] = ode45(f, [0,2], -0.002);
```

Warning: Failure at t=8.881001e-01. Unable to meet integration tolerances without reducing the step size below the smallest value allowed (1.776357e-15) at time t.

```
figure(6)  
hold on  
quiver(TT,YY,DT,DY)  
ezplot(u0,[0,2])  
ezplot(u1,[0,2])  
plot(t5,y5,t15,y15,t1,y1,t2,y2)  
title('Du=7*u*(1-u)'),axis([0,2,-0.5,1.6])  
hold off
```



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