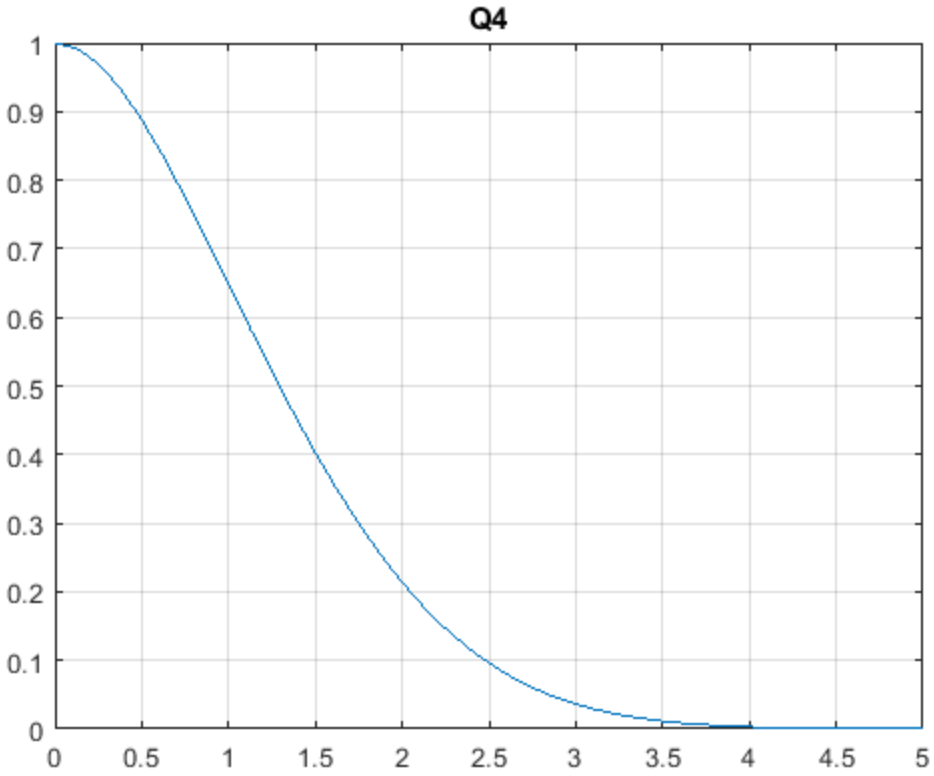
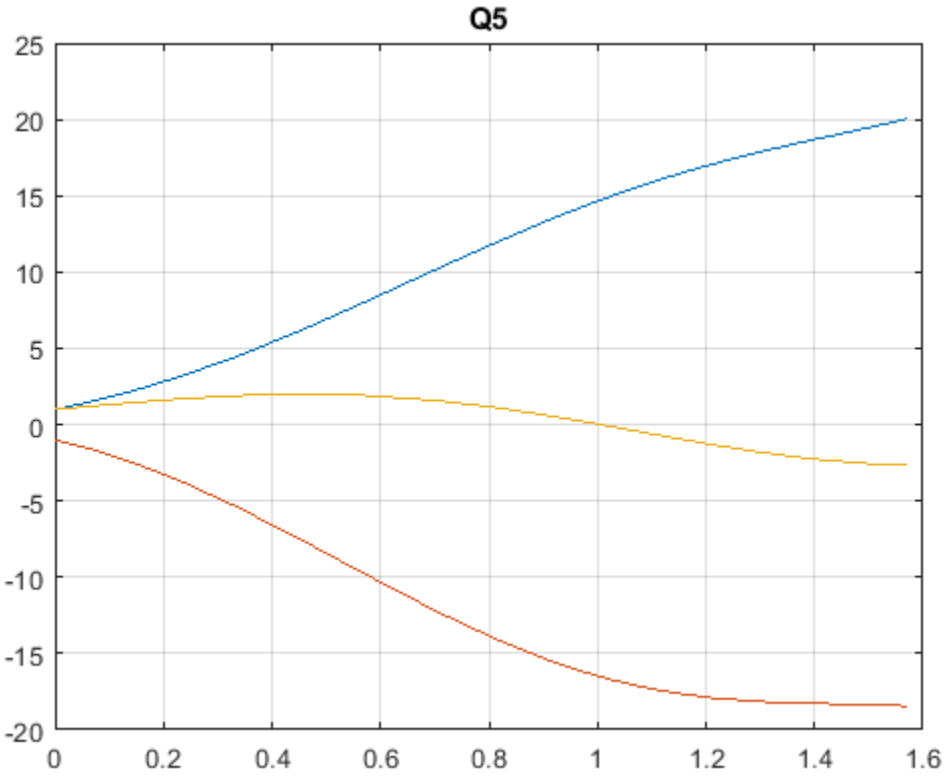
```
% Zachary Linkletter
% ECE 498 HW 8
% 4/9/18

clear
clc

Q1 = dsolve('Dy = x^2/y','x')

Q2 = dsolve('Dy + y^2 * sin(x) = 0', 'x')

Q3 = dsolve('x * Dy = sqrt(1 - y^2)','x')

f = @(x,y) (-x*y)/sqrt(2 - y^2);

[x,y] = ode45(f, [0 5], 1);
figure(1);
plot(x,y)
grid on;
title('Q4');

%function dy = ode(t,y)
%dy = zeros(3,1);
%dy(1) = 2*y(1) + y(2) + 5*y(3) + exp(-2*t);
%dy(2) = -3*y(1) - 2*y(2) - 8*y(3) + 2*exp(-2*t) - cos(3*t);
%dy(3) = 3*y(1) + 3*y(2) + 2*y(3) + cos(3*t);
%end


[x1,y1] = ode23('ode',[0 pi/2], [1 -1 1])

figure(2);
plot(x1,y1)
grid on;
title('Q5');


Q1 =

  2^(1/2)*(x^3/3 + C2)^(1/2)
 -2^(1/2)*(x^3/3 + C2)^(1/2)


Q2 =

                0
 -1/(C5 + cos(x))


Q3 =

               1
              -1
```

```
 sin(C8 + log(x))


x1 =

         0
    0.0100
    0.0600
    0.1455
    0.2370
    0.3369
    0.4479
    0.5706
    0.7023
    0.8075
    0.9127
    0.9789
    1.0283
    1.0777
    1.1378
    1.2106
    1.2946
    1.3893
    1.4963
    1.5708


y1 =

    1.0000   -1.0000    1.0000
    1.0710   -1.0816    1.0301
    1.4550   -1.5393    1.1838
    2.2286   -2.5075    1.4451
    3.2227   -3.7854    1.6960
    4.4903   -5.4157    1.8992
    6.0906   -7.4337    1.9987
    8.0208   -9.7722    1.9156
   10.1700  -12.2140    1.5808
   11.8542  -13.9738    1.1408
   13.4408  -15.4686    0.5748
   14.3658  -16.2454    0.1725
   15.0127  -16.7367   -0.1423
   15.6200  -17.1513   -0.4631
   16.3043  -17.5543   -0.8527
   17.0554  -17.9035   -1.3084
   17.8256  -18.1442   -1.7855
   18.6031  -18.2693   -2.2262
   19.4316  -18.3435   -2.5520
   20.0321  -18.4420   -2.6492
```


Q4
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


Q5
25
20
15
10
5
0
-5
-10
-15
-20
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6

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