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[ > # Section 2.6 Problem 12 with h=0.25
[ > restart;
[ > f:=(x,y)->y*(10-2*y);
                                f:=(x,y)→y(10-2y)
[ > x[0]:=0;
  y[0]:=1;
                                x0:=0
                                y0:=1
[ > n:=10;
  h:=2.5/n;
                                n:=10
                                h:=0.2500000000
[ > ye[0]:=y[0]:
  for i from 0 to n-1 do
    x[i+1]:=x[0]+h*(i+1);
    ye[i+1]:=ye[i]+h*f(x[i],ye[i]);
  od:
[ > yk[0]:=y[0]:
  for i from 0 to n-1 do
    x[i+1]:=x[0]+h*(i+1);
    k1:=h*f(x[i],yk[i]);
    k2:=h*f(x[i]+0.5*h,yk[i]+0.5*k1);
    k3:=h*f(x[i]+0.5*h,yk[i]+0.5*k2);
    k4:=h*f(x[i+1],yk[i]+k3);
    yk[i+1]:=yk[i]+(1.0/6.0)*(k1+2*(k2+k3)+k4);
  od:
[ > plot([[seq([x[i],ye[i]],i=0..n)],
         [seq([x[i],yk[i]],i=0..n)]]);
[ > [x[n], ye[n], yk[n]];
                                [2.500000000, 6.000000000, 4.981941459]
[ >

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