
Harj. 2, teht. 10

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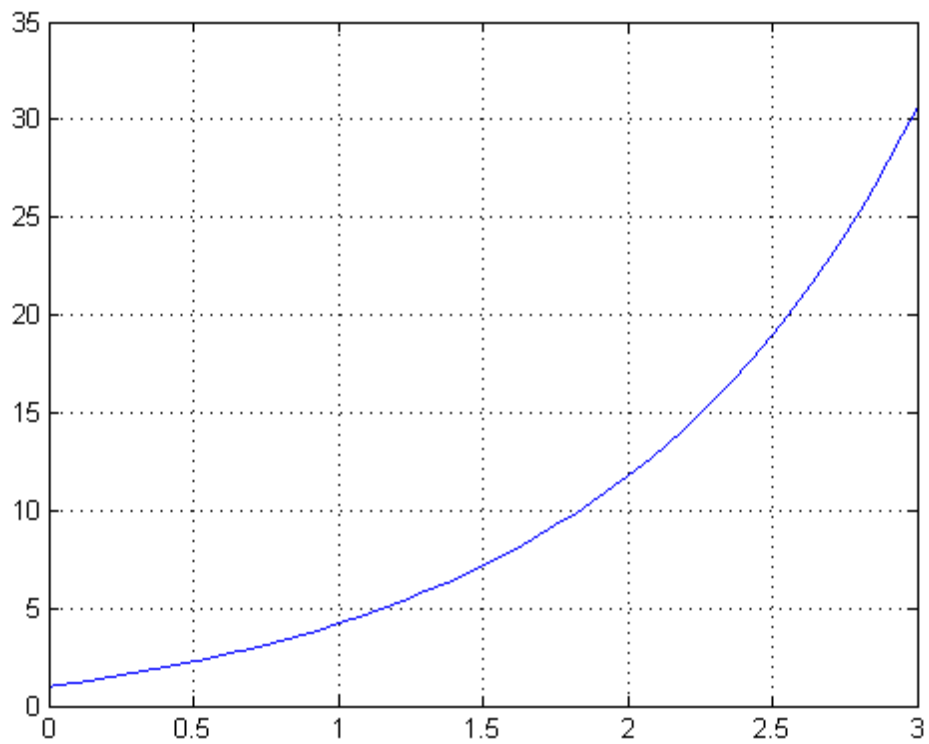
a) $y' - y = \cos x$, $y(0)=1$

$y'=f(x,y)$, missä $f(x,y)=\cos(x)+y$

```
close all
f=@(x,y)cos(x)+y

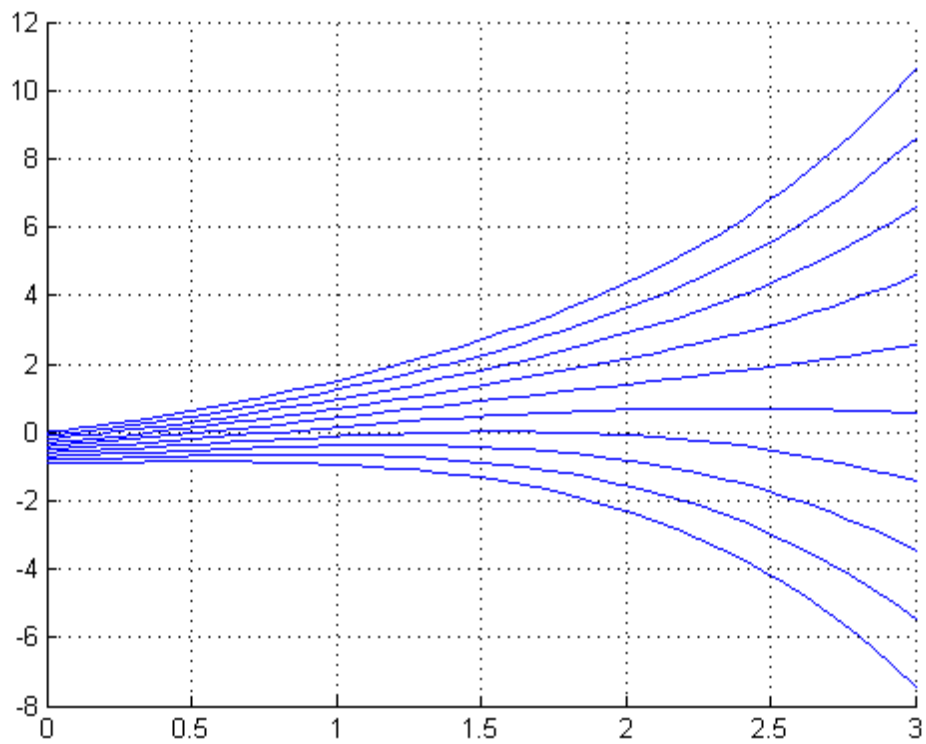
b=3; % Vaihhdellaan tätä
[X,Y]=ode45(f,[0 b],1);
plot(X,Y);grid on;shg
hold off
```

```
f =
    @(x,y)cos(x)+y
```



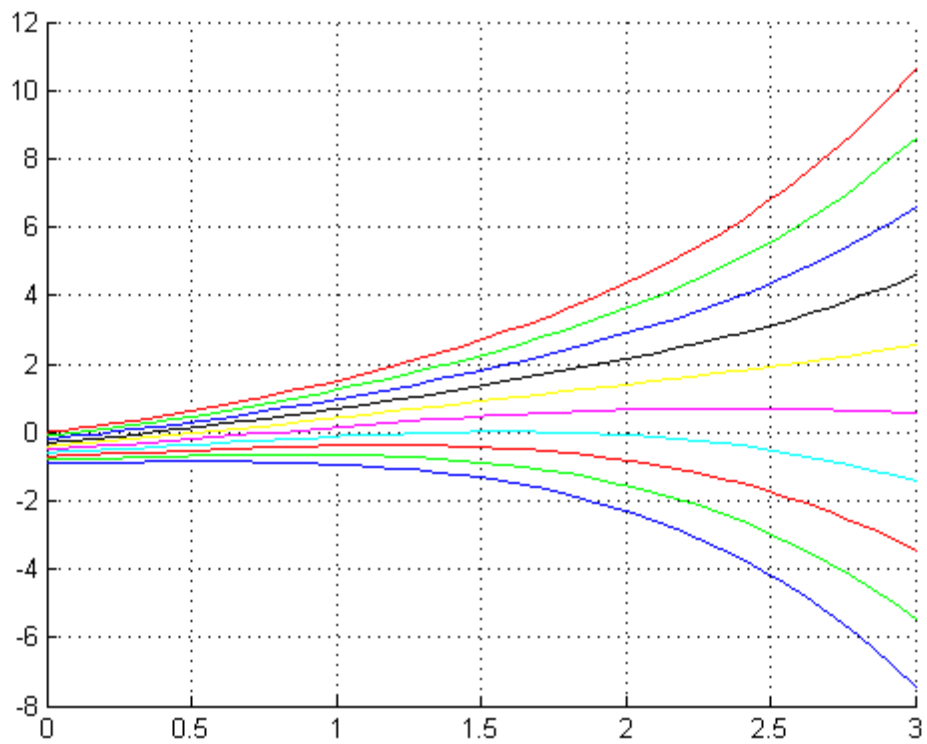
b) $y(0)=c$, $c=-.9:.1:0$

```
clf
b=3;
hold on
for c=-.9:.1:0
    [X,Y]=ode45(f,[0,b],c);
    plot(X,Y)
end
grid on;shg
hold off
```



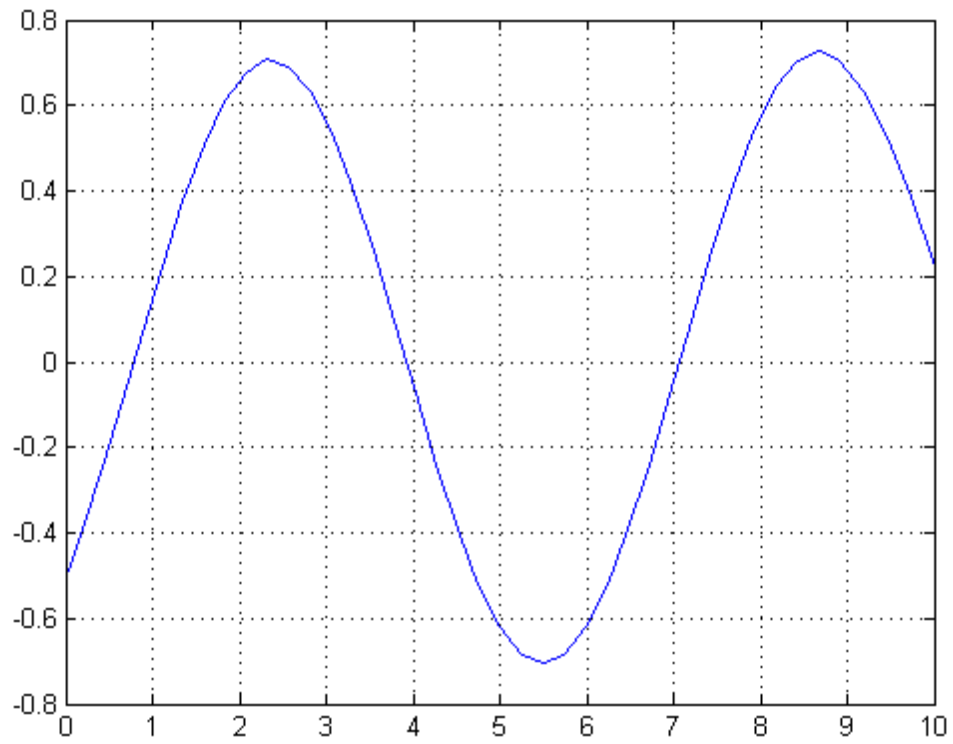
Alkeellinen tapa ottaa vÄrit mukaan:

```
varit='bgrcmyk';  
varit=[varit,varit];  
i=1;  
hold on  
for c=-.9:.1:0  
    [X,Y]=ode45(f,[0,b],c);  
    plot(X,Y,varit(i))  
    i=i+1;  
end  
shg
```



Entä huomaatko katsoa tapausta $c=-1/2$? (Vrt. Maple)

```
[X,Y]=ode45(f,[0,10],-.5);  
figure  
plot(X,Y);grid on  
figure(1);figure(2)
```



`publish('H2T10R','pdf')` % Komentoikkunassa, älä tässä, tai ikuinen looppi

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