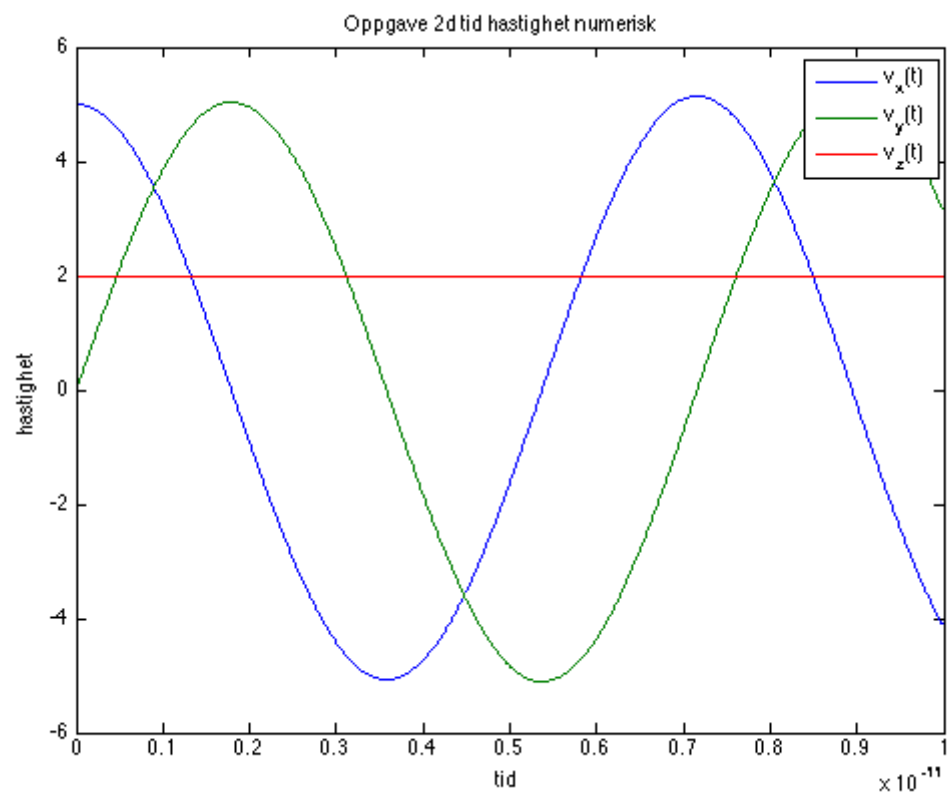
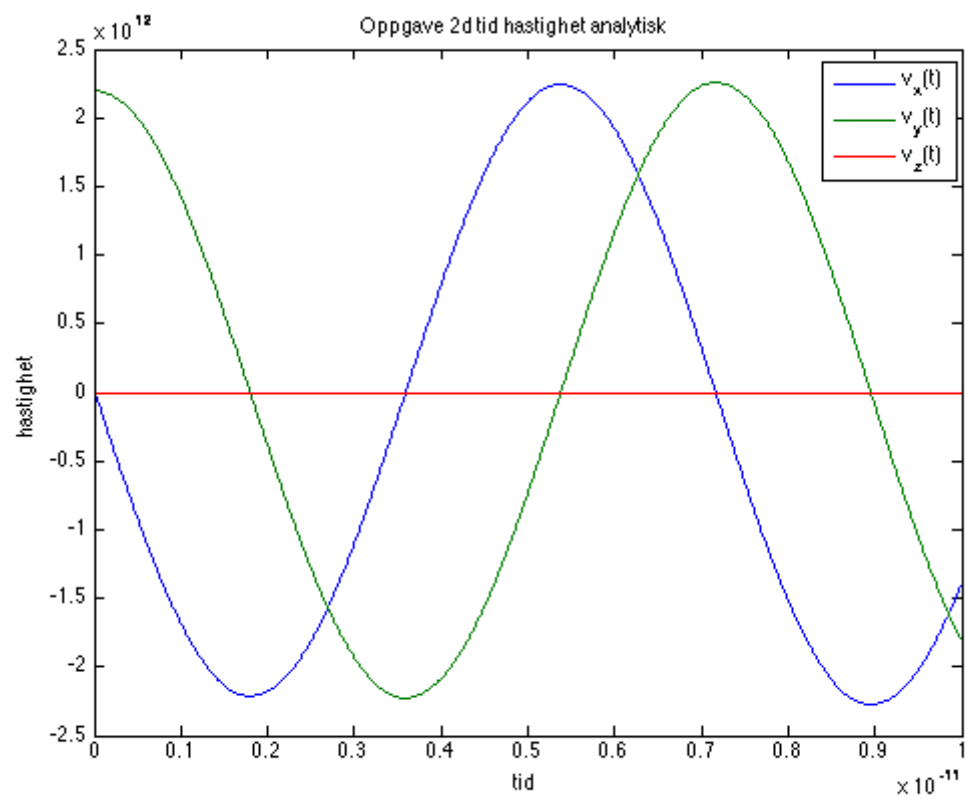
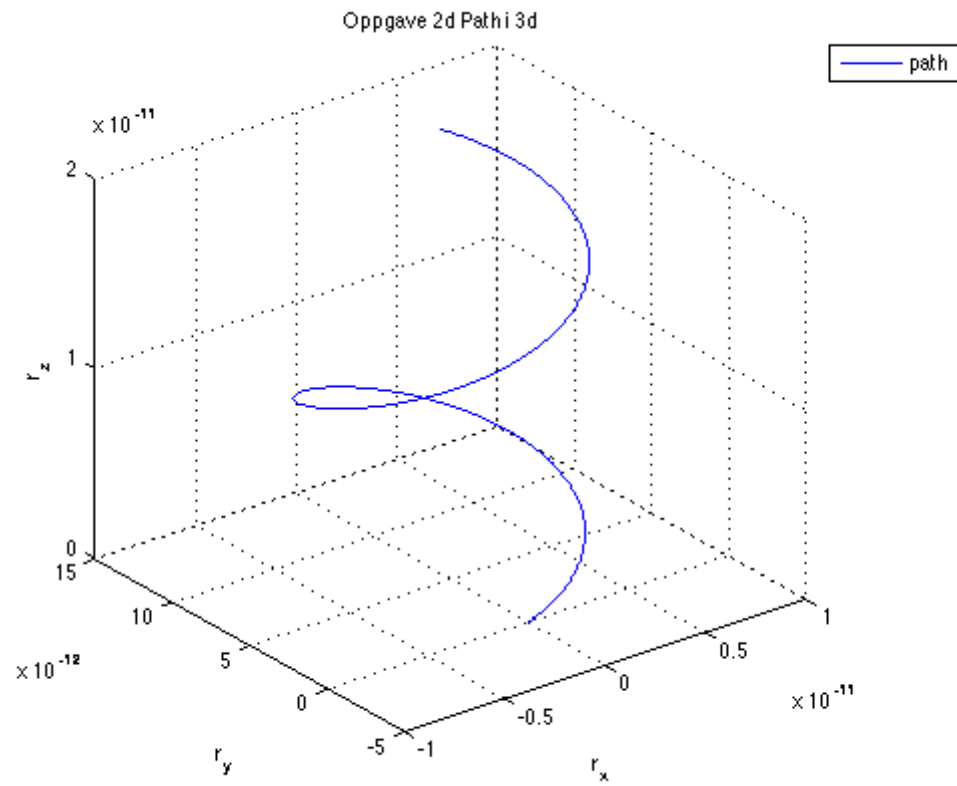

```
m_e = 9.11e-31;
e = -1.6e-19;
r0=[0 0 0];
v0=[5 0 2];
B=[0 0 5];
t0=0;
t1=1*10e-12;
dt=10e-15; %30fs
r=r0;
v=v0;
n=t1/dt;
t=t0;
c=0;

for i=2:n
    F = e*(cross(v(i-1,:),B));
    a = F./m_e;
    v(i,:) = v(i-1,:) + a.*dt;
    r(i,:) = r(i-1,:) + v(i-1,:).*dt;
    c=c+dt;
    t(i,:)=c;
    va(i,:)=0.5.*a;
end

figure()
plot(t(:,1),va(:,1),t(:,1),va(:,2),t(:,1),va(:,3))
legend('v_x(t)','v_y(t)','v_z(t)'); title('Oppgave 2d tid hastighet analytisk ')
xlabel('tid'); ylabel('hastighet')
figure()
plot(t(:,1),v(:,1),t(:,1),v(:,2),t(:,1),v(:,3))
legend('v_x(t)','v_y(t)','v_z(t)'); title('Oppgave 2d tid hastighet numerisk')
xlabel('tid'); ylabel('hastighet')
figure()
plot3(r(:,1),r(:,2),r(:,3))
legend('path'); title('Oppgave 2d Path i 3d'); grid()
xlabel('r_x'); ylabel('r_y'); zlabel('r_z')
```





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