HOME WORK

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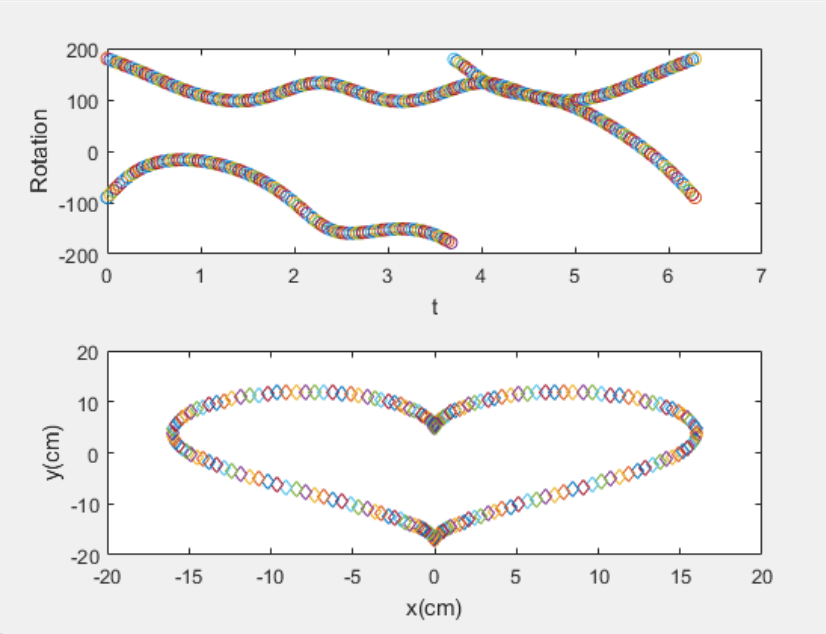
Bài 1: Trái tim:

Code:

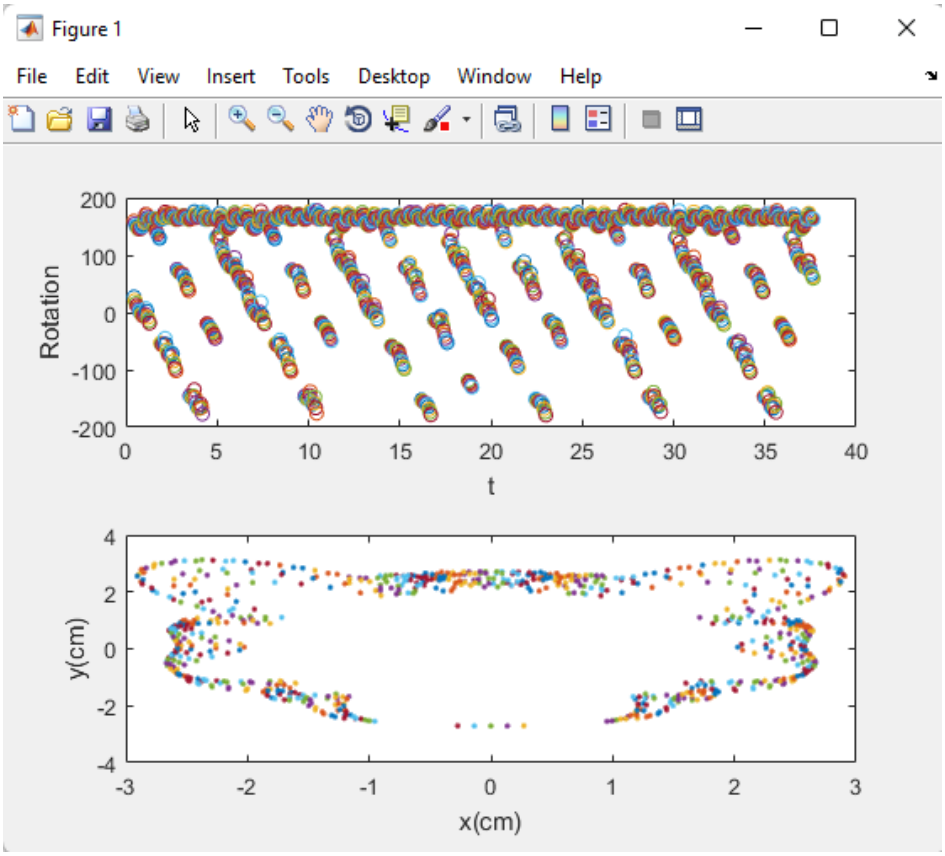
```
l1 = 10;
l2 = 15;
for t=0:pi/100:2*pi
x= 16*sin(t)^3;
y= 13*cos(t)-5*cos(2*t)-2*cos(3*t)-cos(4*t);
c2=(x^2+y^2-l1^2-l2^2)/(2*l1*l2);
s2=sqrt(abs(1-c2^2));
t2= atan2(s2,c2);
c1=(l1+l2*cos(t2))*x+l2*sin(t2)*y;
s1= y*(l1+l2*cos(t2))-l2*sin(t2)*x;
t1=atan2(s1,c1);
Px= l1*cos(t1)+l2*cos(t1+t2);
Py=l1*sin(t1)+l2*sin(t1+t2);
subplot(2,1,1)
plot(t,t1*180/pi,'-o',t,t2*180/pi,'--o'); pause(0.01)
xlabel('t');
ylabel('Rotation');
hold on;
subplot(2,1,2)
plot(Px,Py,'d')
xlabel('x(cm)');
ylabel('y(cm)'); pause(0.01);
hold on;
end
```



Bài 2: Hình con bướm

Code:

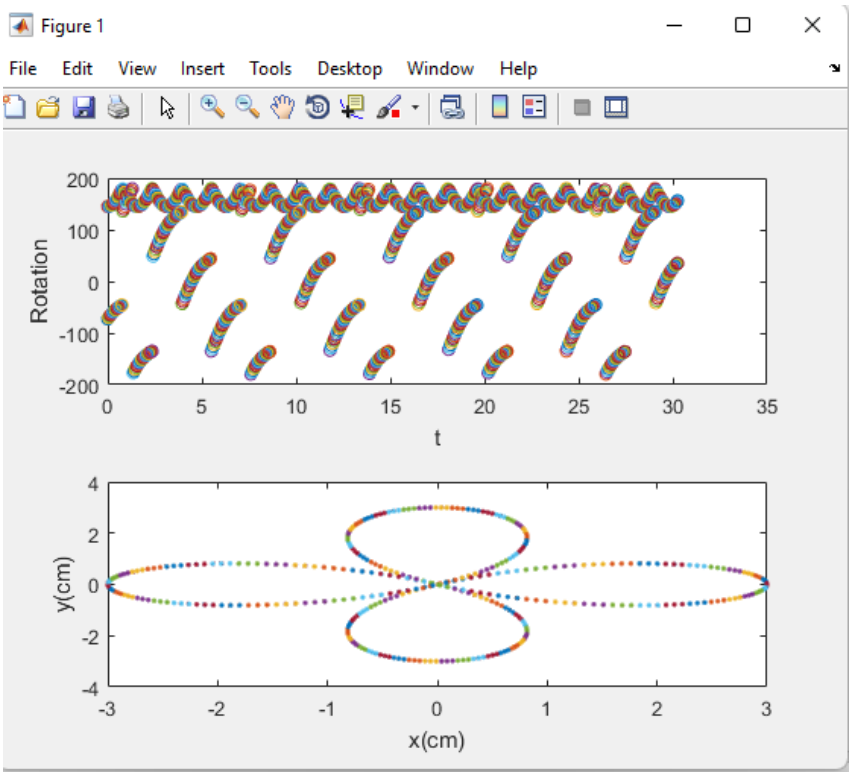
```
l1 = 7;
l2 = 5;
for t=0:0.05:12*pi
    x = sin(t)*(exp(cos(t))-2*cos(4*t)-(sin(t/12))^5);
    y = cos(t)*(exp(cos(t))-2*cos(4*t)-(sin(t/12))^5);
    c2=(x^2+y^2-l1^2-l2^2)/(2*l1*l2);
    s2=sqrt(abs(1-c2^2));
    t2= atan2(s2,c2);
    c1=(l1+l2*cos(t2))*x+l2*sin(t2)*y;
    s1= y*(l1+l2*cos(t2))-l2*sin(t2)*x;
    t1=atan2(s1,c1);
    Px= l1*cos(t1)+l2*cos(t1+t2);
    Py=l1*sin(t1)+l2*sin(t1+t2);
    subplot(2,1,1)
    plot(t,t1*180/pi,'-o',t,t2*180/pi,'--o'); pause(0.01)
    xlabel('t');
    ylabel('Rotation');
    hold on;
    subplot(2,1,2)
    plot(Px,Py,'.')
    xlabel('x(cm)');
    ylabel('y(cm)'); pause(0.01);
    hold on;
end
```



Bài 3: Hoa 4 cánh

Code:

```
l1 = 5;
l2 = 5;
for t=0:0.05:12*pi
    x = 3*cos(2*t)*cos(t);
    y = 3*cos(2*t)*sin(t);
    c2=(x^2+y^2-l1^2-l2^2)/(2*l1*l2);
    s2=sqrt(abs(1-c2^2));
    t2= atan2(s2,c2);
    c1=(l1+l2*cos(t2))*x+l2*sin(t2)*y;
    s1= y*(l1+l2*cos(t2))-l2*sin(t2)*x;
    t1=atan2(s1,c1);
    Px= l1*cos(t1)+l2*cos(t1+t2);
    Py=l1*sin(t1)+l2*sin(t1+t2);
    subplot(2,1,1)
    plot(t,t1*180/pi,'-o',t,t2*180/pi,'--o'); pause(0.01)
    xlabel('t');
    ylabel('Rotation');
    hold on;
    subplot(2,1,2)
    plot(Px,Py,'.')
    xlabel('x(cm)');
    ylabel('y(cm)'); pause(0.01);
    hold on;
end
```



Bài 4: Hoa 6 cánh

Code:

```
l1 = 5;
l2 = 5;
for t=0:0.01:12*pi
    x = 3*(cos(3*t))^2*cos(t);
    y = 3*(cos(3*t))^2*sin(t);
    c2=(x^2+y^2-l1^2-l2^2)/(2*l1*l2);
    s2=sqrt(abs(1-c2^2));
    t2= atan2(s2,c2);
    c1=(l1+l2*cos(t2))*x+l2*sin(t2)*y;
    s1= y*(l1+l2*cos(t2))-l2*sin(t2)*x;
    t1=atan2(s1,c1);
    Px= l1*cos(t1)+l2*cos(t1+t2);
    Py=l1*sin(t1)+l2*sin(t1+t2);
    subplot(2,1,1)
    plot(t,t1*180/pi,'-o',t,t2*180/pi,'--o'); pause(0.01)
    xlabel('t');
    ylabel('Rotation');
    hold on;
    subplot(2,1,2)
    plot(Px,Py,'.')
    xlabel('x(cm)');
    ylabel('y(cm)'); pause(0.01);
    hold on;
end
```