Space Curves[1]

1. Try the following commands:
```
t = 0:pi/60:8*pi;
x = cos(t);
y = sin(t);
z = t;
plot3(x,y,z)
```
What is the geometric object? Click on the `Tools` icon and select `Rotate 3D`. You can then use the mouse to rotate the plot. Repeat the above command but change the 60 in the first command to 6. That is the effect? What is the effect of changing the 8 to 4?

2. Try the following commands:
```
t = -2:.1:2;
x = t;
y = t.^2;
z = t.^3;
plot3(x,y,z)
```
Click on the `Tools` icon, select `Rotate 3D` and use the mouse to rotate the plot. What do the projections on the x-y and x-z planes look like? What about the y-z plane? Write the equations of these projections in cartesian coordinates, i.e. x and y for the first one, x and z for the second, etc..

3. Try the following commands and describe the graph (rotate if needed):
```
t = 0:.01*pi:2*pi;
x = (4+sin(20*t))*cos(t);
y = (4+sin(20*t))*sin(t);
z = cos(20*t);
plot3(x,y,z)
```

4. Try the following commands and describe the graph (rotate if needed):
```
t = 0:.01*pi:4*pi;
x = (2+cos(1.5*t)).*cos(t);
y = (2+cos(1.5*t)).*sin(t);
z = sin(1.5*t);
plot3(x,y,z)
```

5. Using complete sentences and standard mathematical notation, prepare a brief written report. Do **not** get a printout.

The user plots (parametric) curves in 3 dimensions.