CZ2003 Tutorial 5 (2022/23, Semester 1)

Surfaces obtained by sweeping

1. Using rotational sweeping clockwise, define by parametric functions $x(u,v)$, $y(u,v)$, $z(u,v)$, $u,v \in [0,1]$ the surface displayed in Figure Q1. **Display the surface and attach a screenshot of ShapeExplorer.**

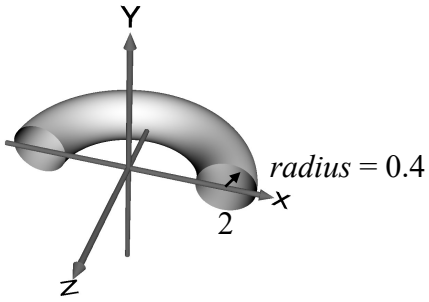

Figure Q1

2. Write parametric equations $x(u,v)$, $y(u,v)$, $z(u,v)$, $u, v, \in [0, 1]$ defining the surface created by sweeping (clockwise rotation by $3\pi/2$ and vertical displacement by -2) of the curve which is defined in polar coordinates by $r = 0.5\sin(4\alpha)$, $\alpha \in [0, 2\pi]$ (Figure Q2). **Display the surface and attach a screenshot of ShapeExplorer.**

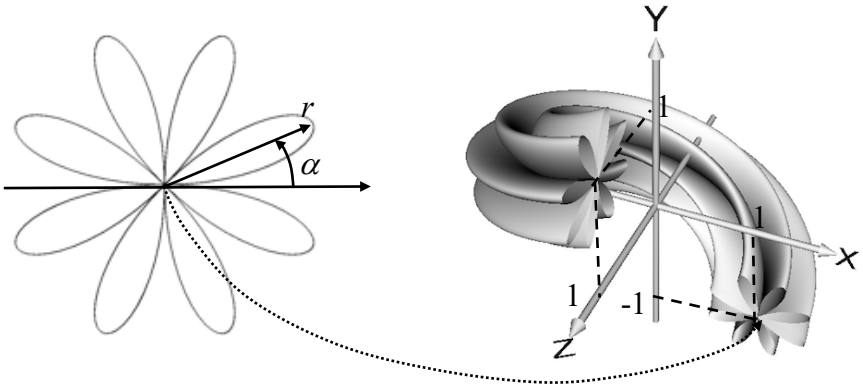

Figure Q2