

Math 241 Class Exercise: Space Curves and Plotting 2
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1. Sketch the following curves in matlab:

(a) $\vec{r}(t) = \langle (4 + \sin 20t) \cos t, (4 + \sin 20t) \sin t, \cos 20t \rangle$

(b) $\langle (2 + \cos 1.5t) \cos t, (2 + \cos 1.5t) \sin t, \sin 1.5t \rangle$

(c) $\langle e^{-t} \cos 10t, e^{-t} \sin 10t, e^{-t} \rangle$

(d) $\langle \cos t, \sin t, \sin 5t \rangle$

2. Find a vector valued function that represents the intersection of the circular cylinder $x^2 + y^2 = 4$ and the parabolic cylinder $z = x^2$. i.e. parametrize the space curve defined by the intersection and draw it. Now, plot your parametrization in matlab.
3. Try to sketch by hand the curve of intersection of the parabolic cylinder $y = x^2$ and the top half of the ellipsoid $x^2 + 4y^2 + 4z^2 = 16$. Find parametric equations representing the intersection and plot them using matlab.