

Calculus 3 Projects

Instructions for all projects:

Complete everything by hand first.

Then confirm using matlab.

You must graph using matlab.

You do not have to graph by hand.

Include your matlab code when you submit the project.

I will run the code to make sure it works.

Show all work.

Chapter 9 Project

1. Your Birthday = $m/d/y$
2. $V_1 = (d, -m, 2000 - y)$
3. $V_2 = (m, y - 1990, -d)$
4. $\|V_1\|$ and $\|V_2\|$
5. $5V_2 - 3V_1$
6. $V_1 \cdot V_2$ and $V_2 \cdot V_1$
7. $V_1 \times V_2$ and $V_2 \times V_1$
8. Produce a surface plot in matlab of a Sphere with:
 - a. $radius = |m - d|$
 - b. $center = (d + m, y, 2000)$

Chapter 10 Project

1. Your Birthday = $m/d/y$
2. A particle moves through space according to the Position Vector Function
$$= r(t) = dt^m \hat{i} + \sin\left(\frac{t}{m}\right) \hat{j} + \frac{d}{e^t} \hat{k}$$
3. Find the Velocity Vector Function that describes the particle's speed.
4. Find the Acceleration Vector Function that describes the particle's acceleration.
5. Position, Velocity, and Acceleration at $t = |m - d|$
6. Plot $r(t)$ in Matlab

