

Lab 9: Differential Geometry

Lab9.ma is a *Mathematica* notebook that extends the results of Lab 8 to the general field of differential geometry. It defines commands to obtain the moving trihedral and the curvature and torsion functions of a three-dimensional trajectory. It then uses these commands to verify the Frenet-Serret formulae for selected trajectories.

Like all *Mathematica* notebooks, this one is used by opening its cells and executing its *Mathematica* commands. To open a cell, double-click on its cell bracket. To execute a *Mathematica* command, click on its cell bracket to select it, and then press the Enter key (not the Return key).

Lab9.wn explains how to work through **Lab9.ma** on the NeXT.

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Category:

Mathematics

Usage:

This software is used by students enrolled in Multivariate Calculus at the University of Richmond.

Version:

This software uses Mach 2.0
and *Mathematica* 2.0

References:

This software refers to the two books:

Calculus and Analytic Geometry, Fourth Edition
by Sherman K. Stein (McGraw-Hill, 1987).

A Guidebook to Calculus with Mathematica
by Philip Crooke and John Ratcliffe (Wadsworth, 1991).