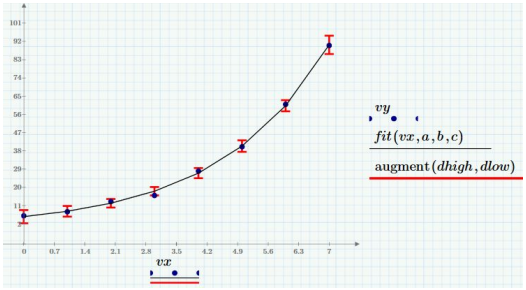
PTC® University

Advanced Functionality Using Mathcad Prime 3.0

Overview

Course Code	TRN-4020-T
Course Length	1 Day



In this course, you will learn advanced functionality using Mathcad Prime 3.0. You will learn about Mathcad Prime 3.0 advanced functionality in data exchange and analysis, programming, symbolics, and differential equations.

At the end of each module, you will find a set of review questions to reinforce critical topics from that module. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole.

This course is also applicable to Mathcad Prime 3.1.

Course Objectives

- Use an Excel component as a function
- Use the built in function genfit to fit a model function to a set of data
- Determine the quality of fit of a predicted model to a set of data points by calculating the sum of the squares of the residuals and the confidence intervals of the data points
- Use the built-in functions polyfit and polyfitc to model data
- Explain the use of two Mathcad custom functions written for interfacing with an HDF5 file format
- Create a PTC Mathcad program
- Use conditional statements
- Use looping constructs
- Use symbolic calculation features
- Use symbolic keywords
- Solve an ordinary differential equation
- Solve a partial differential equation
- Solve a nonlinear differential equation

$$m \cdot x''(t) = -c \cdot x'(t) - k \cdot x(t)$$

Prerequisites

- Mathcad Prime 3.0 Essentials or equivalent Mathcad Prime experience

Audience

- This class is intended for those who are intermediate or advanced users of Mathcad. People in related roles will also benefit from taking this course.

Agenda

Day 1

Module	1	Data Exchange and Analysis
Module	2	Programming
Module	3	Symbolics
Module	4	Differential Equations

Course Content

Module 1. Data Exchange and Analysis

i. Using an Excel Component as a Function
ii. Using genfit Regression Analysis
iii. Determining the Quality of Fit
iv. Using Multivariate Polynomial Regression Analysis
v. Data Exchange with HDF5- and ODBC-Compliant Databases

Knowledge Check Questions

Module 2. Programming

i. Writing a Program

Knowledge Check Questions

Module 3. Symbolics

i. Using Symbolics

Knowledge Check Questions

Module 4. Differential Equations

i. Solving Ordinary Differential Equations
ii. Solving Partial Differential Equations
iii. Solving Nonlinear Differential Equations

Knowledge Check Questions