MTH 201: Calculus

Daily Preparation, Module 8B: Applying the Extreme Value Theorem

Due by: 11:59pm ET, **SUNDAY**, November 1 (Note the different date!)

Estimated time requirement: About 45-60 minutes for the whole assignment. *If you have worked on this assignment for 30 minutes and you're not at least halfway done, DON'T work any further* — instead, *stop and ask for help* on the `#dailyprep` channel on CampusWire.

Overview

Having learned about the Extreme Value Theorem and how to use it to find absolute extreme values of a continuous function on a closed interval, we'll use Module 8B to put it to work on applied problems. This includes *building the model first* and then using the Extreme Value Theorem to find its absolute extrema.

What you will learn

Learning Targets addressed in this module:

- **DA.3**: I can use the Extreme Value Theorem to find the absolute maximum and minimum values of a continuous function on a closed interval.

BEFORE your class meeting, use the Resources for Learning (below) to learn how to do the following:

- (*Review*) State the **Extreme Value Theorem** and explain the three-step process it provides for finding the absolute extreme values of a continuous function on a closed interval.

DURING AND AFTER your class meeting, you will learn how to do the following:

- Given an applied setting, build a function that models the situation; identify a closed interval for its domain; then identify its absolute maximum and minimum values on the interval.

Resources for Learning

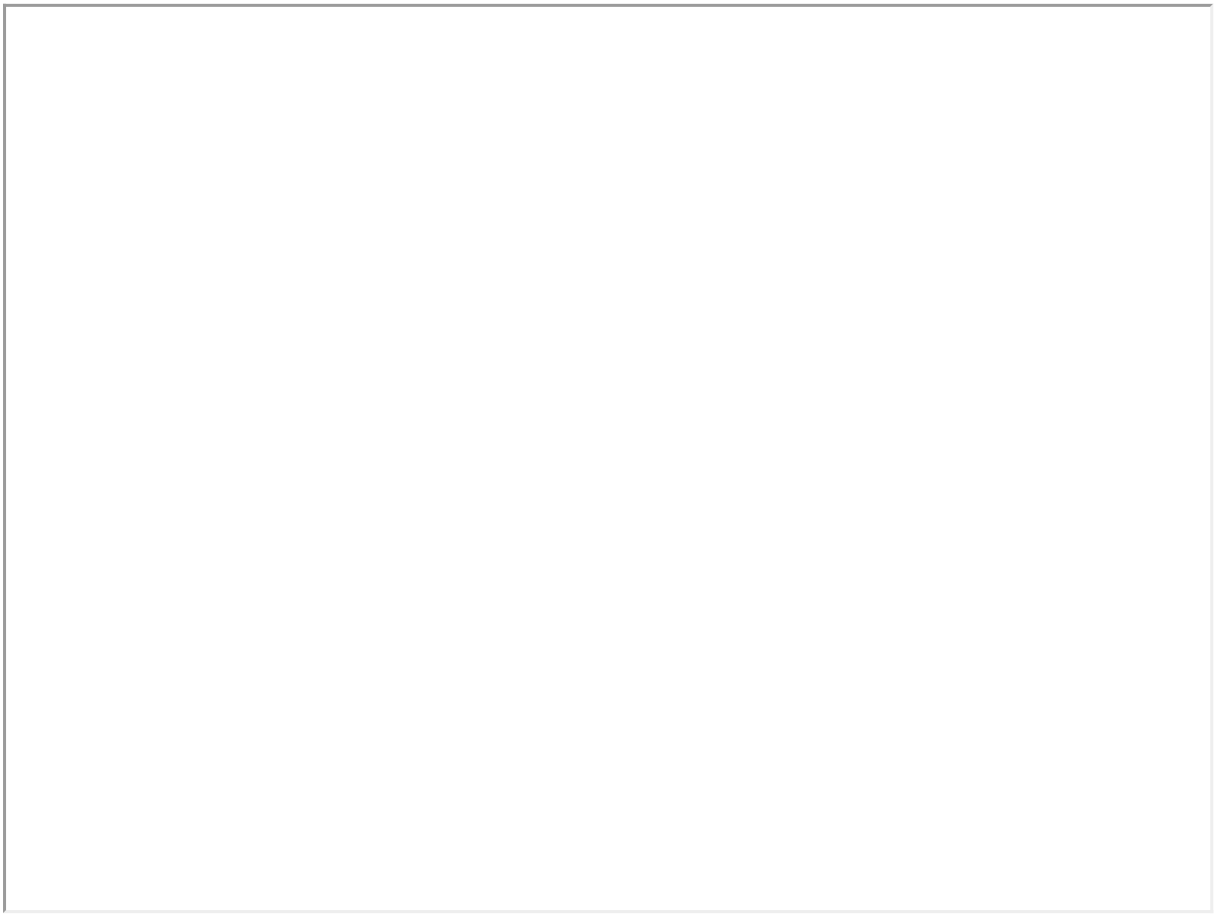
Text: In the *Active Calculus* text, re-read part 3.3.2 "Moving Toward Applications" from Section 3.3. Especially, study Example 3.3.4 carefully and aim to understand each step of the process.

Video: No new videos this time, although you might benefit from a quick review of the videos for Module 8A.

You are free to search for and use other resources in addition to, or instead of the above, as long as you can work the exercises below.

Exercises

Here is an interactive demo for the problem found in Example 3.3.4 that will be the focal point of the exercises this time. If you can't see it, go here: https://www.geogebra.org/geometry/bd8g76gu



The exercises are on Classkick. If you need codes, they are:

- Section 02: `PVJ X8K`
- Section 04: `LRW WVD`

Submission, grading, and getting help

Submitting your work: Just work through the activities; your work is saved as you go.

How this is graded: Daily Prep assignments are graded on the basis of *completeness and effort*: If your submission has **all parts completed** (no blank entries, even if left blank accidentally) and **a good-faith effort to provide a correct solution or explanation is given** (no responses of "I don't know" or "I didn't understand") and **the work is submitted on time**, it gets a "check". Otherwise it gets an "x". If you are stuck on an item, you're expected to ask questions and give your best effort.

Getting help on this assignment: *You may work with others on this assignment, but you may not copy each others' answers.* Evidence of copying will be treated as academic dishonesty. You may also ask questions on the #dailyprep

channel on CampusWire, but you may not ask simply to be given the answers; giving and receiving answers on CampusWire will be treated as academic dishonesty.