

MTH 201: Calculus

Daily Preparation, Module 4A: Elementary derivative rules

Due by: 11:59pm ET, Sunday, September 27

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

All three modules leading up to this point have focused on what a **derivative** is: Its origins in average velocity and rate of change, what it tells us about the function we are differentiating, and the information contained between a function and its first two derivatives. In Module 4 we shift focus to **computing derivatives** by introducing some shortcut methods that will replace taking limits and using the definition. In Module 4A we begin this process by looking at shortcut methods for elementary functions: constant, power, and exponential functions along with basic combinations of these.

What you will learn

Learning Targets addressed in this module:

- **DC.1 (CORE):** I can compute derivatives correctly for power, polynomial, and exponential functions and the sine and cosine functions, and basic combinations of these (constant multiples, sums, differences).

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

- Compute (without using limits) the derivatives of constant, power, and exponential functions.

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

- Compute the derivative of constant multiples and sums of constant, power, and exponential functions.
- Use basic derivative rules to solve problems about slopes, velocities, and rates of change involving basic functions.

Resources for Learning

Text: Read through [Section 2.1](#) of the *Active Calculus* textbook. Work through the examples and all interactive exercises found at the end of the section.

Video: At the MTH 201 playlist on YouTube (<http://bit.ly/GVSUCalculus>), watch the following videos. The total running time is 23:06.

- Screencast 2.1.1 – Quick Review of elementary derivative rules (3:33) <https://www.youtube.com/watch?v=wFOgWzl0SuQ>
- Screencast 2.1.2 – Derivatives of power and constant functions (5:19) <https://www.youtube.com/watch?v=ciBNzth33Fw>
- Screencast 2.1.3 – Derivatives of exponential functions (2:54) <https://www.youtube.com/watch?v=kcQieXhoAqs>
- Screencast 2.1.4 – Derivatives of constant multiples (4:06) <https://www.youtube.com/watch?v=gva8IngB1BI>
- Screencast 2.1.5 – Derivatives of sums (7:14) <https://www.youtube.com/watch?v=BaAj1IZvt-w>

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

The exercises for this assignment are on Classkick. Go to <http://app.classkick.com> and sign in with your username and password to access it. If you need the code, it is posted to Blackboard.

Your work is saved as you go, so there's no "submit" step at the end.

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.

