

## Daily Preparation, Module 5A: The Product and Quotient Rules

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**Due by:** 11:59pm ET, Sunday, October 4

**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

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Now that we've learned "shortcut" methods for basic functions, we'll be learning some derivative rules for more complicated combinations of those functions. We begin with the **Product Rule** for differentiating a product of two functions and the **Quotient Rule** for differentiating a quotient of two functions.

### What you will learn

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**Learning Targets addressed in this module:**

- **DC.2 (CORE):** I can compute derivatives correctly for products, quotients, and composites of functions.
- **DC.3:** I can compute derivatives correctly using multiple rules in combination.

We won't be fully prepared for these Learning Targets until the completion of Module 6.

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

- State the Product Rule and Quotient Rule.
- Use the Product Rule to differentiate products of basic functions.
- Use the Quotient Rule to differentiate quotients of basic functions.

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

- Use derivative rules (including the Product and Quotient Rule, but also older rules) to solve problems about slopes, velocities, and rates of change involving basic functions.

### Resources for Learning

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**Text:** Read through [Section 2.3](<https://activecalculus.org/single/sec-2-3-prod-quot.html>) of the Active

Calculus textbook. You can just skim the discussion at the beginning of 2.3.1 and start paying full attention at the box titled “Product Rule”. Work through the examples and all interactive exercises found at the end of the section.

**Video:** Watch the following from the GVSUMath Calculus playlist:

- Screencast 2.3.1: Quick Review - The Product and Quotient Rules (2:00)  
[https://www.youtube.com/watch?v=bAGEnF0uFog&list=PL9bljQJDwfGuXQHUS5Jkmum\\_CFILoCZX-&index=33](https://www.youtube.com/watch?v=bAGEnF0uFog&list=PL9bljQJDwfGuXQHUS5Jkmum_CFILoCZX-&index=33)
- Screencast 2.3.2: Product Rule examples (6:48) [https://www.youtube.com/watch?v=mkrnp3ew0WA&list=PL9bljQJDwfGuXQHUS5Jkmum\\_CFILoCZX-&index=34](https://www.youtube.com/watch?v=mkrnp3ew0WA&list=PL9bljQJDwfGuXQHUS5Jkmum_CFILoCZX-&index=34)
- Screencast 2.3.3: Quotient Rule examples (10:38) [https://www.youtube.com/watch?v=HxFjkYjabwQ&list=PL9bljQJDwfGuXQHUS5Jkmum\\_CFILoCZX-&index=35](https://www.youtube.com/watch?v=HxFjkYjabwQ&list=PL9bljQJDwfGuXQHUS5Jkmum_CFILoCZX-&index=35)
- Screencast 2.3.4: Combining the Product and Quotient Rules (9:01)  
[https://www.youtube.com/watch?v=9IZNcY3VbdE&list=PL9bljQJDwfGuXQHUS5Jkmum\\_CFILoCZX-&index=36](https://www.youtube.com/watch?v=9IZNcY3VbdE&list=PL9bljQJDwfGuXQHUS5Jkmum_CFILoCZX-&index=36)

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

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Exercises are on Classkick this time. Go to <http://app.classkick.com> and log in. If asked, your code is:

- Section 02: OWO EYR
- Section 04: URZ XF6

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

## Submission, grading, and getting help

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**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.

